Appendix A:

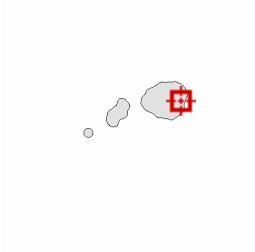
Niulani Beach Restoration Maps

County of Kaua'i
State of Hawai'i

Niulani Beach Restoration

Regional Map

Overview



Legend

- Parcels
- CPR Units
- Parcel Numbers
- Roads

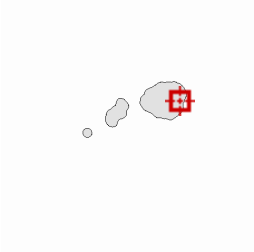
Date created: 5/28/2025
Last Data Uploaded: 5/27/2025 4:25:00 AM

Developed by SCHNEIDER GEOSPATIAL

Niulani Beach Restoration

Vicinity Map

Overview



Legend

- Parcels
- CPR Units
- Parcel Numbers
- Roads

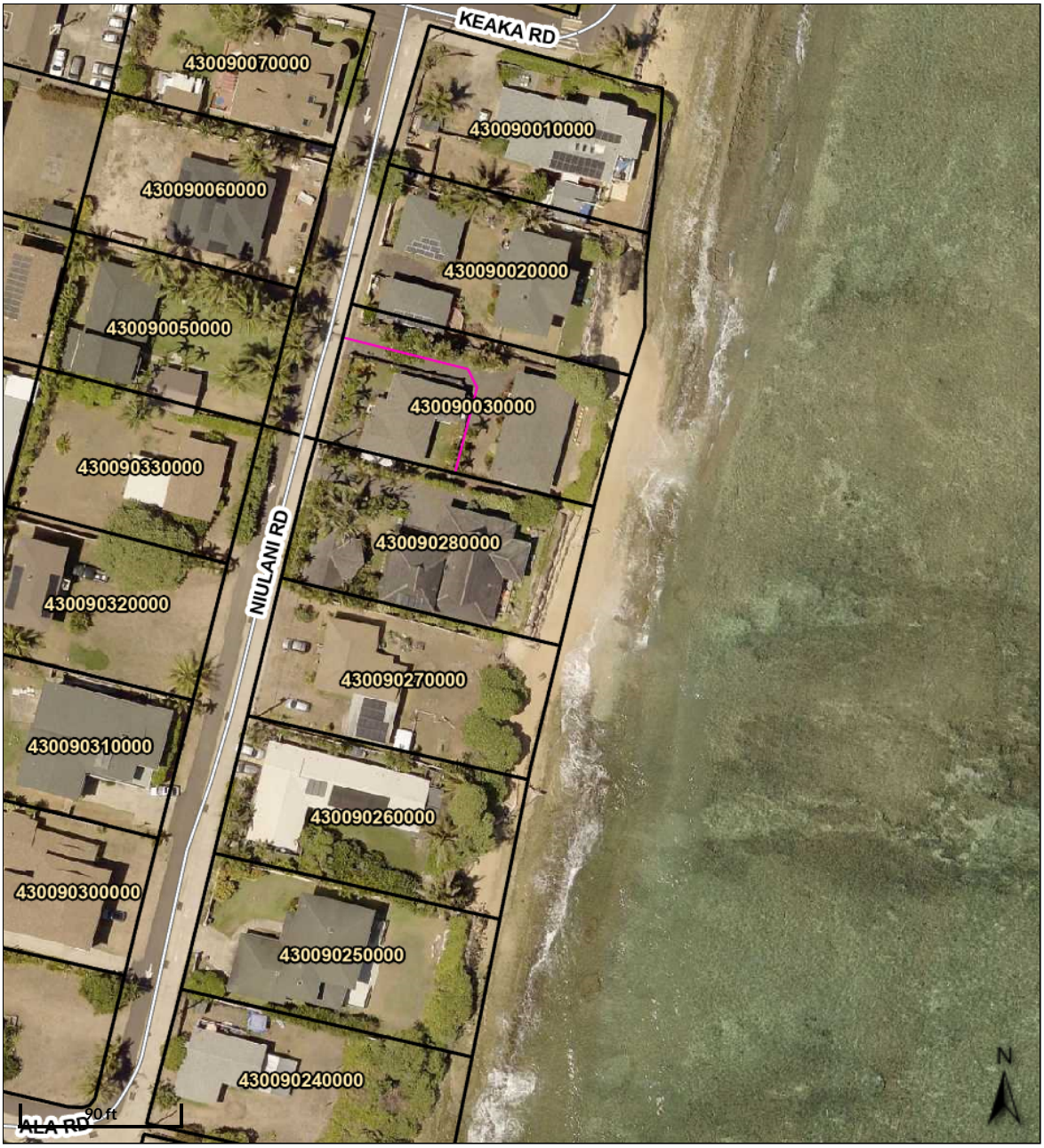
Date created: 5/28/2025
Last Data Uploaded: 5/27/2025 4:25:00 AM

Developed by SCHNEIDER GEOSPATIAL

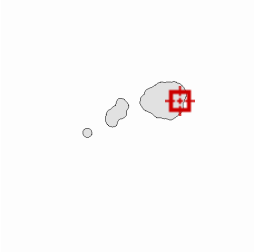
County of Kaua'i
State of Hawai'i

Niulani Beach Restoration

Parcel Map



Overview



Legend

- Parcels
- CPR Units
- Parcel Numbers
- Roads

Date created: 5/28/2025
Last Data Uploaded: 5/27/2025 4:25:00 AM

Developed by SCHNEIDER GEOSPATIAL

Appendix B:

Project Site Shoreline Photographs

Photograph 1. Fronting the property of TMK 4-3-009:026, looking south

Photograph 2. Fronting the property of TMK 4-3-009:026, looking west at the property

Photograph 3. Fronting the property of TMK 4-3-009:026, looking north

Photograph 4. Fronting the property of TMK 4-3-009:027, looking north

Photograph 5. Fronting the property of TMK 4-3-009:028, looking south

Photograph 6. Fronting the property of TMK 4-3-009:028, looking north

Photograph 7. Fronting the property of TMK 4-3-009:003, looking south

Photograph 8. At property boundary of TMKs 4-3-009:003 & :002, looking south

Photograph 9. Fronting the properties of TMKs 4-3-009:003 & :002, looking west to shore

Photograph 10. Fronting the property of TMK 4-3-009:002, looking north

Appendix C:

Shoreline Survey

Note:

1. Elevation transferred from RM 81
2. RM 81 elevation: 7.07 MSL
3. Azimuths and coordinates referred to Government Triangulation Station "NONOU".

Legend:

clmn – Column
cnc – Concrete
crm – Concrete Reinforced Masonry
cvr – Cover
hbib – Hose Bib
plntr – Planter
shwr – Shower

ZONE X — Areas determined to be outside 0.2% annual chance floodplain

ZONE VE — Coastal flood zone with the velocity hazard (wave action), Base Flood elevations determines.

The property lies within Flood Zones X and VE. Flood zone information based on Flood Insurance Rate Map published by the Federal Emergency Management Agency for Kaua'i County, Hawai'i, Panel 204 of 500, Map Number 1500020204F, map dated November 26, 2010.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

TOPOGRAPHIC MAP SHOWING PORTIONS OF LOTS 7, 8, 9, 14, 15, 16, 17, K AND KEAKA ROAD

KAPAA, KAUAI, HAWAII
Tax Map Key: (4) 4–3–09: 01, 02, 03, 25, 26, 27, and 28
Prepared for: Dileep Bal
Date of Map: May 15, 2025

Job Number: 09–113 KN
Drawing File: 09–113 topo 5–15–25.dwg

ESAKI SURVEYING & MAPPING, INC.
Civil Engineers – Land Surveyors – Planners

1610 Haleukana Street
Lihue, Kauai, Hawaii 96766

Appendix D:

Niulani Beach Restoration Concepts

NIULANI STREET

TMK 4-3-009:026

TMK 4-3-009:027

TMK 4-3-009:028

TMK 4-3-009:003

TMK 4-3-009:002

TMK 4-3-009:001

PRE-EXST. 12/23/24 SHORELINE

FLOOD ZONE BOUNDARY, MAUKA: ZONE X (UNSHADED), MAKAI: ZONE VE (EL 11)

CONCRETE RUBBLE MASONRY

SAND BAGS

PLANTER BOX, TYP. OF (8)

NAUPAKA, TYP.

ROCK WALL

PLANTER

OCEAN

NOTES:

1. TOPOGRAPHIC AND HYDROGRAPHIC SURVEY BY ESAKI SURVEYING & MAPPING, INC., UPDATED 5/28/2025. CONTOUR ELEVATIONS REFERENCE MLLW.

EXISTING SITE PLAN
NIULANI BEACH RESTORATION

30' 0 30' 60'

SCALE: 1" = 30'

oceanit

FIGURE A

JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"

NIULANI STREET

TMK 4-3-009:026 | TMK 4-3-009:027 | TMK 4-3-009:028 | TMK 4-3-009:003 | TMK 4-3-009:002 | TMK 4-3-009:001

390'±

TIE INTO ADJACENT CONTOURS & GROINS

72'±

24'±

6'±

BEACH NOURISHMENT

67'±

24'±

6'±

BERM CREST

72'±

24'±

6'±

STONE GROIN, TYP. OF (3)

OCEAN

PROJECT SUMMARY

VOLUME OF ARMOR STONE:	500± CY
VOLUME OF NOURISHMENT SAND:	2,000± CY
AREA OF NOURISHMENT SAND:	21,200± SF

CONCEPT SITE PLAN
NIULANI BEACH RESTORATION

30' 0 30' 60'

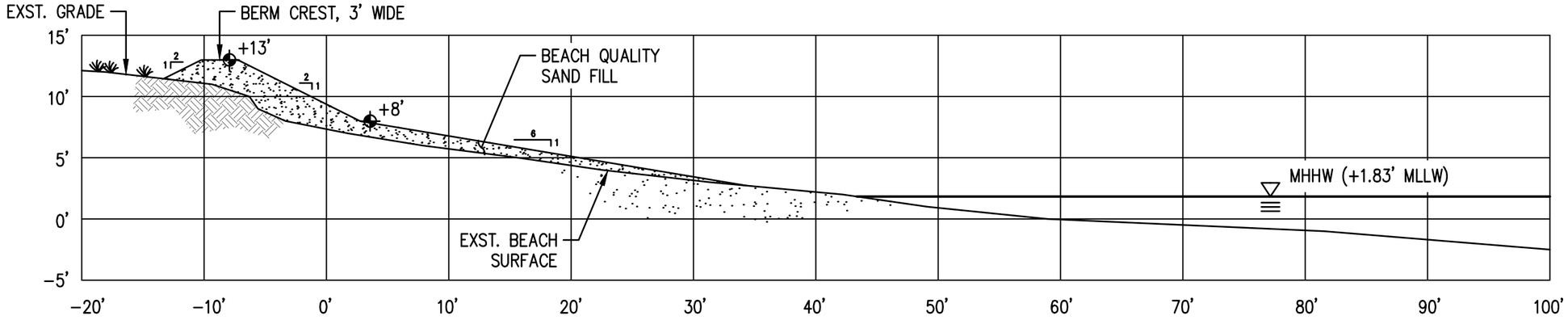
SCALE: 1" = 30'

oceanit

FIGURE B

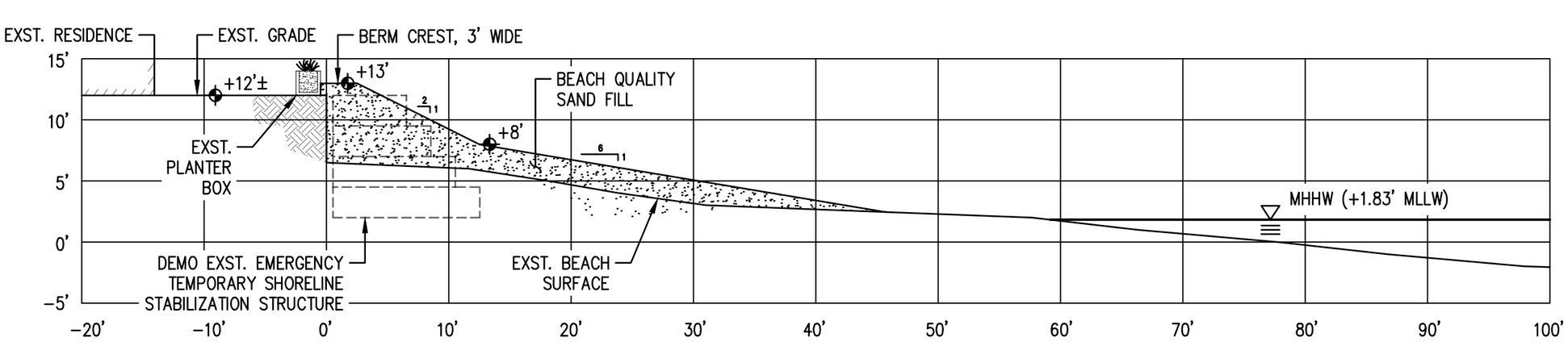
JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"



1/C PROP. SECTION AT TMKS 4-3-009:026 & :027

SCALE: 1" = 10'-0"



2/C PROP. SECTION AT TMK 4-3-009:028

SCALE: 1" = 10'-0"

CONCEPT SECTIONS
NIULANI BEACH RESTORATION

10' 0 10' 20'

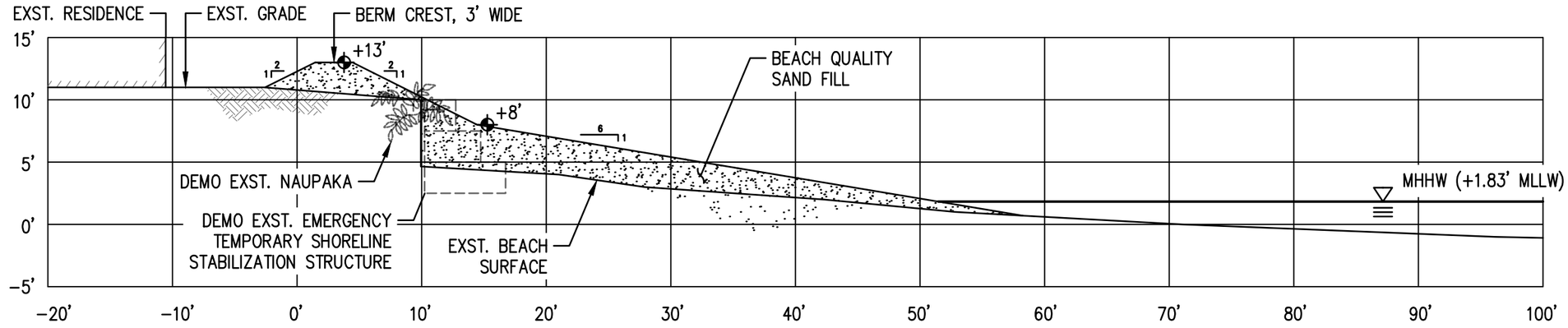
SCALE: 1" = 10'

oceanit

FIGURE C

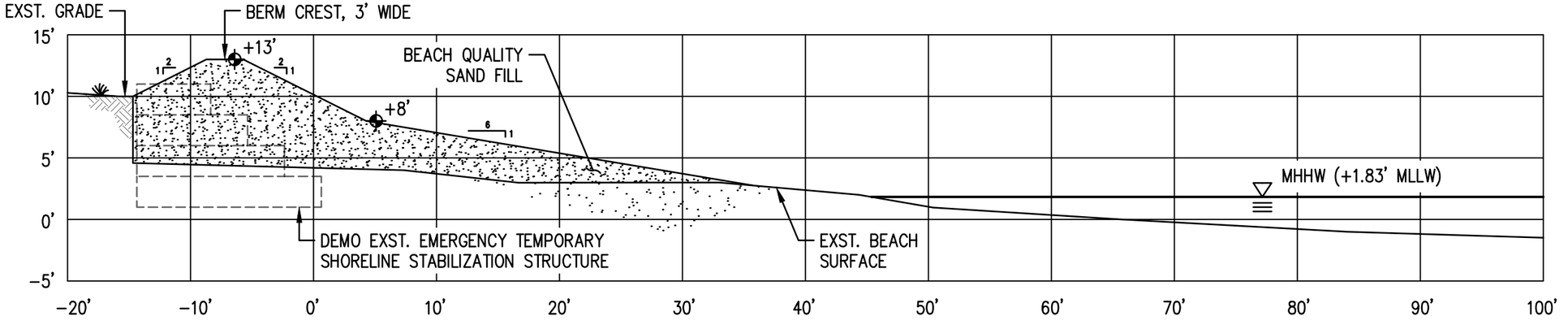
JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"



1/D PROP. SECTION AT TMK 4-3-009:003

SCALE: 1" = 10'-0"



2/D PROP. SECTION AT TMK 4-3-009:002

SCALE: 1" = 10'-0"

CONCEPT SECTIONS (CON'T)
NIULANI BEACH RESTORATION

10' 0 10' 20'

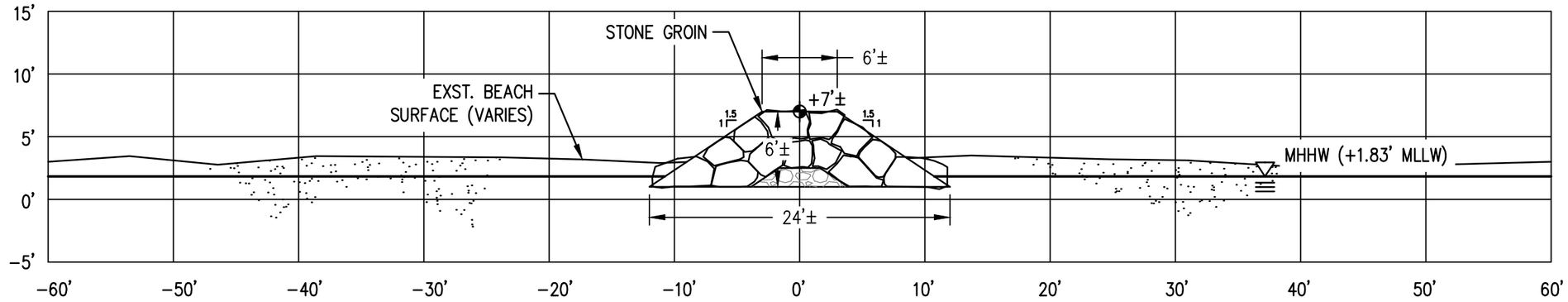
SCALE: 1" = 10'

oceanit

FIGURE D

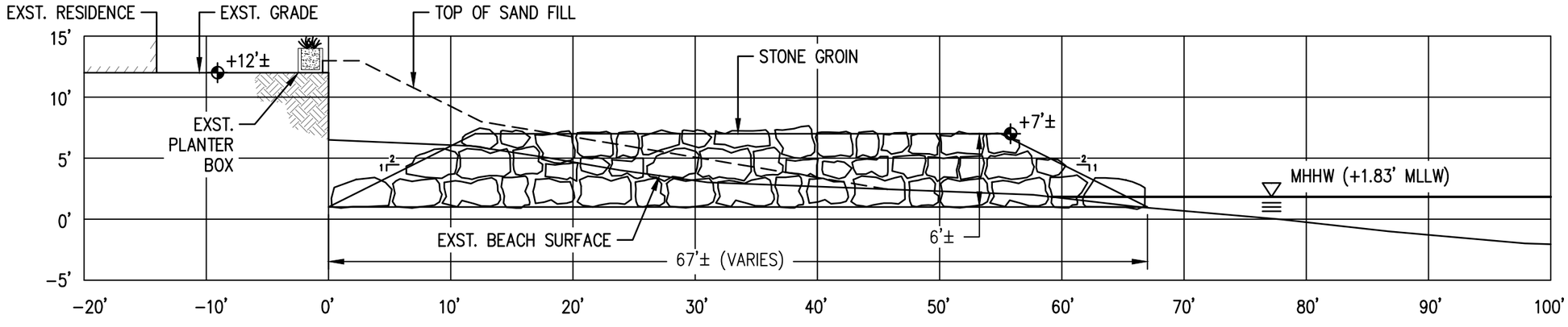
JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"



1/E PROP. CROSS SECTION AT GROIN, TYP.

SCALE: 1" = 10'-0"



2/E PROP. LONGITUDINAL SECTION AT GROIN, TYP.

SCALE: 1" = 10'-0"

CONCEPT SECTIONS (CON'T)
NIULANI BEACH RESTORATION

10' 0 10' 20'

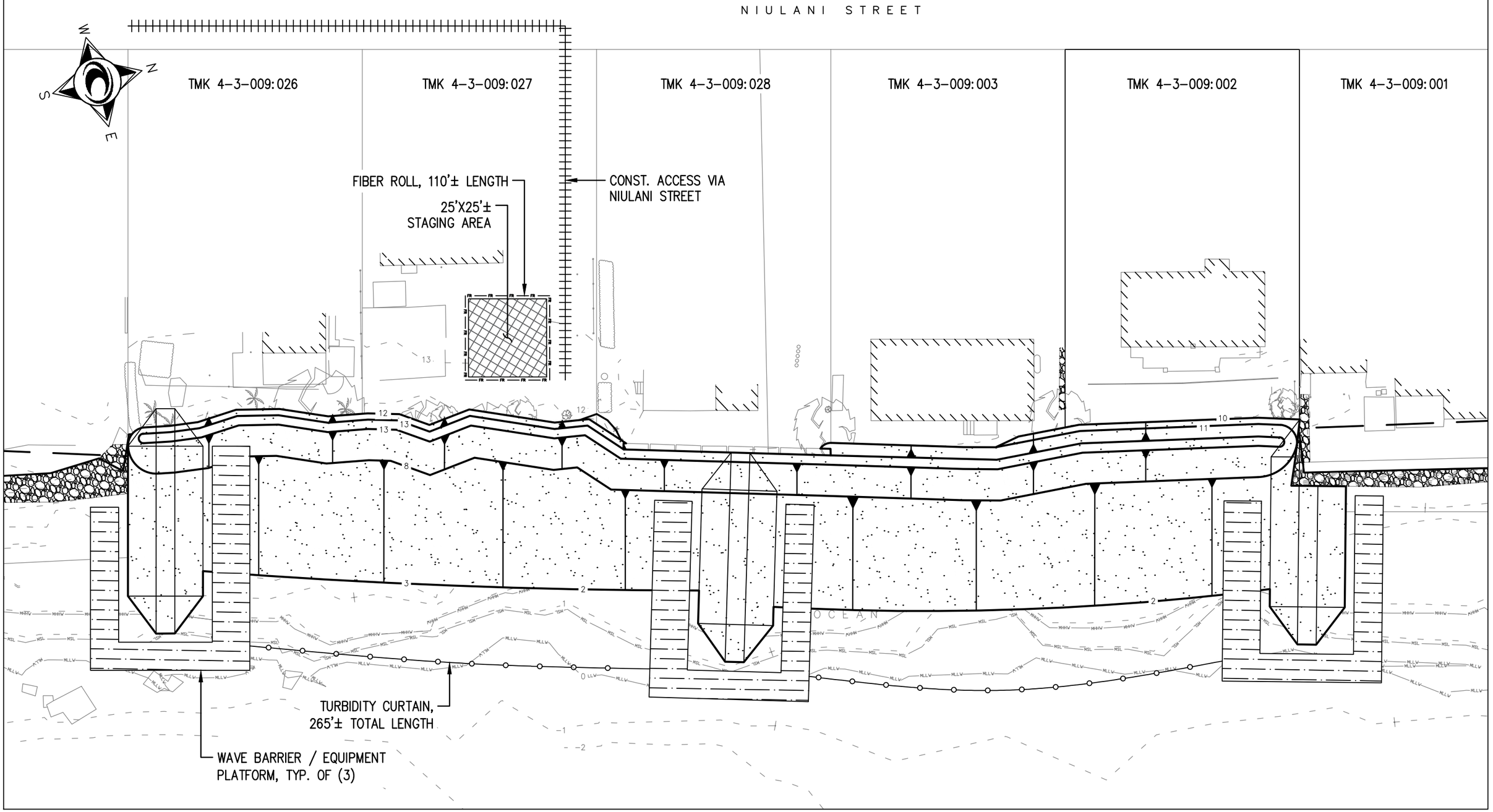
SCALE: 1" = 10'

oceanit

FIGURE E

JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"



BEST MANAGEMENT PRACTICES (BMP) PLAN
NIULANI BEACH RESTORATION

30' 0 30' 60'

SCALE: 1" = 30'

oceanit

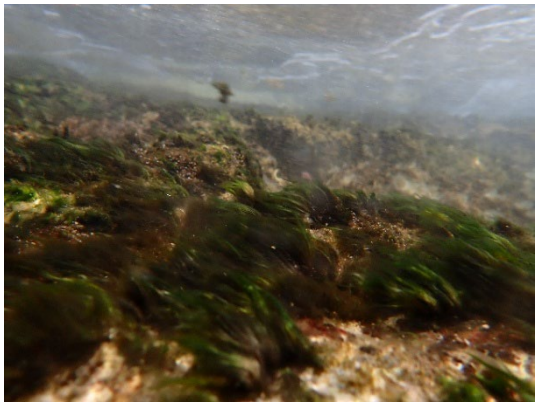
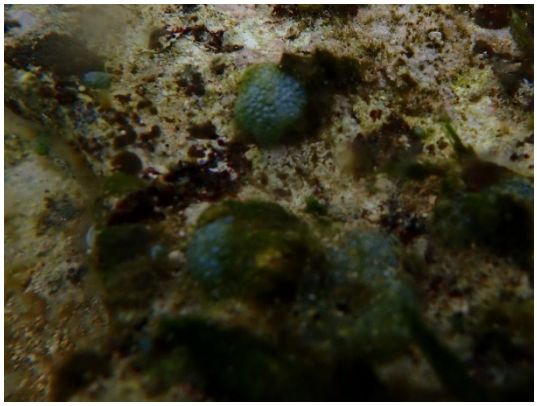
FIGURE F

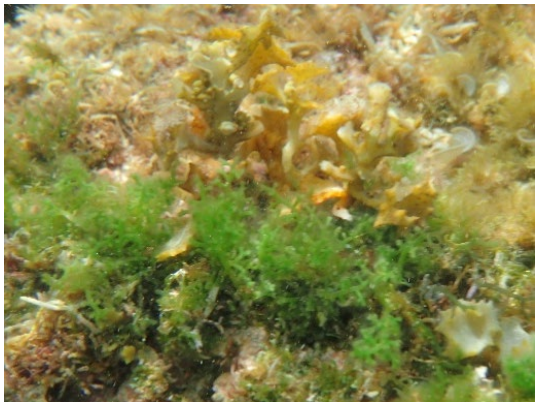
JUNE 2025

"FOR DISCUSSION PURPOSES ONLY. NOT FOR CONSTRUCTION"

Appendix E:

Benthic Photographs

	**Photograph 1.** Field/weather conditions during investigation on April 19, 2025, taken approximately mid-site, fronting TMK 4-3-009:028, looking west.
	**Photograph 2.** Crustose coralline algae (CCA) growing on a rock next to *Holothuria atra* which is covered in sand. *Padina sanctae-crucis* is growing in the turf algae above the CCA.
	**Photograph 3.** Large fields of turf algae.
	**Photograph 4.** *Dictyosphaeria versluysii* growing alongside turf algae.

	**Photograph 5.** Loose individual of *Acanthophora spicifera.*
	**Photograph 6.** *Cellana exarate*, otherwise referred to as "'opihi."
	**Photograph 7.** Intertidal rock covered in juvenile *Cellana sandwicensis.*
	**Photograph 8.** *Laurencia mcdermidiae* growing below several stalks of *Turbinaria ornata.*

	**Photograph 9.** *Halimeda discoidea* among turf algae.
	**Photograph 10.** Turf algae primarily consisting of *Microdictyon spp., Cladophora catenata* and *Laurencia mcdermidiae.*
	**Photograph 11.** *Echinometra mathaei* resting on bored holes on the sea floor.
	**Photograph 12.** A small community of *Acanthurus triostegus* utilizing submerged rock structures as habitat.

	**Photograph 13.** Antler coral: *Pavona spp.*
	**Photograph 14.** Mounding coral: *Porites lobata.*
	**Photograph 15.** Colony of *Porites spp.*
	**Photograph 16.** Colony of *Pocillopora meandrina.*

Appendix F:

Sediment Analysis Data

AECOS, Inc.

45-939 Kamehameha Highway, Suite 104
Kaneohe HI 9674 (808)234-7770 Fax: (808)234-7775

CLIENT: Oceanit
828 Fort Street Mall, Ste 600
Honolulu HI 96813
ATTN: Mike Foley / Catherine Hanna
channa@oceanit.com

AECOS Job No.:	**631**
REPORT DATE:	5/9/2025

GRAIN SIZE ANALYSIS RESULTS

Date Sampled: 04/19/25, 04/28 Analyzed by: rk, dc AECOS Log No.: **52735**
Date Received: 4/29/2025 Sample Type: sediment

Fraction dry weight (g)

size (mm)	>4.75	4.75 - 4.00	4.00 - 2.00	2.00 - 1.00	1.00 - 0.500	0.500 - 0.355	0.355 - 0.250	0.250 - 0.125	0.125 - 0.075	0.075 - 0.063	<0.063	TOTAL
phi		-2	-1	0	1						pan	
Niulani Beach	0.00	0.00	0.03	5.43	92.80	74.56	15.48	0.15	0.00	0.02	2.00	190.47
Estrella Stockpile	2.23	1.09	6.02	31.68	117.90	21.49	4.92	4.10	1.02	0.17	3.33	193.95

Fraction Percent (%) - calculated

size (mm)	>4.75	4.75 - 4.00	4.00 - 2.00	2.00 - 1.00	1.00 - 0.500	0.500 - 0.355	0.355 - 0.250	0.250 - 0.125	0.125 - 0.075	0.075 - 0.063	<0.063	TOTAL
phi		-2	-1	0	1						pan	
Niulani Beach	0.00	0.00	0.02	2.85	48.72	39.15	8.13	0.08	0.00	0.01	1.05	100.0
Estrella Stockpile	1.15	0.56	3.10	16.33	60.79	11.08	2.54	2.11	0.53	0.09	1.72	100.0

Percent Finer by Weight (%)

size (mm)	>4.75	4.00	2.00	1.00	0.500	0.355	0.250	0.125	0.075	0.063
Niulani Beach	100.00	100.00	99.98	97.13	48.41	9.27	1.14	1.06	1.06	1.05
Estrella Stockpile	98.85	98.29	95.18	78.85	18.06	6.98	4.44	2.33	1.80	1.72

Grain size analyzed by Mechanical Method in Kroetsch, D., Wang, C., 2008. Particle size distribution, In: Carter, M.R., Gregorich, E.G. (Eds.), Soil Sampling and Methods of Analysis.2nd Edition. Canadian SOciety of Soil Science. Taylor and Francis, LLC. Boca Raton, FL. pp 713-725. and ASTM D1140-17, D2217-85 (1998)

Calcium Carbonate (%)	
Niulani Beach	**95%**
Estrella Stockpile	**93%**

CaCO3 analyzed by method described in Carver, 1971. Procedures in sedimentary petrology. Wiley Interscience. 653 pp.

For AECOS, Inc.

AECOS, Inc.

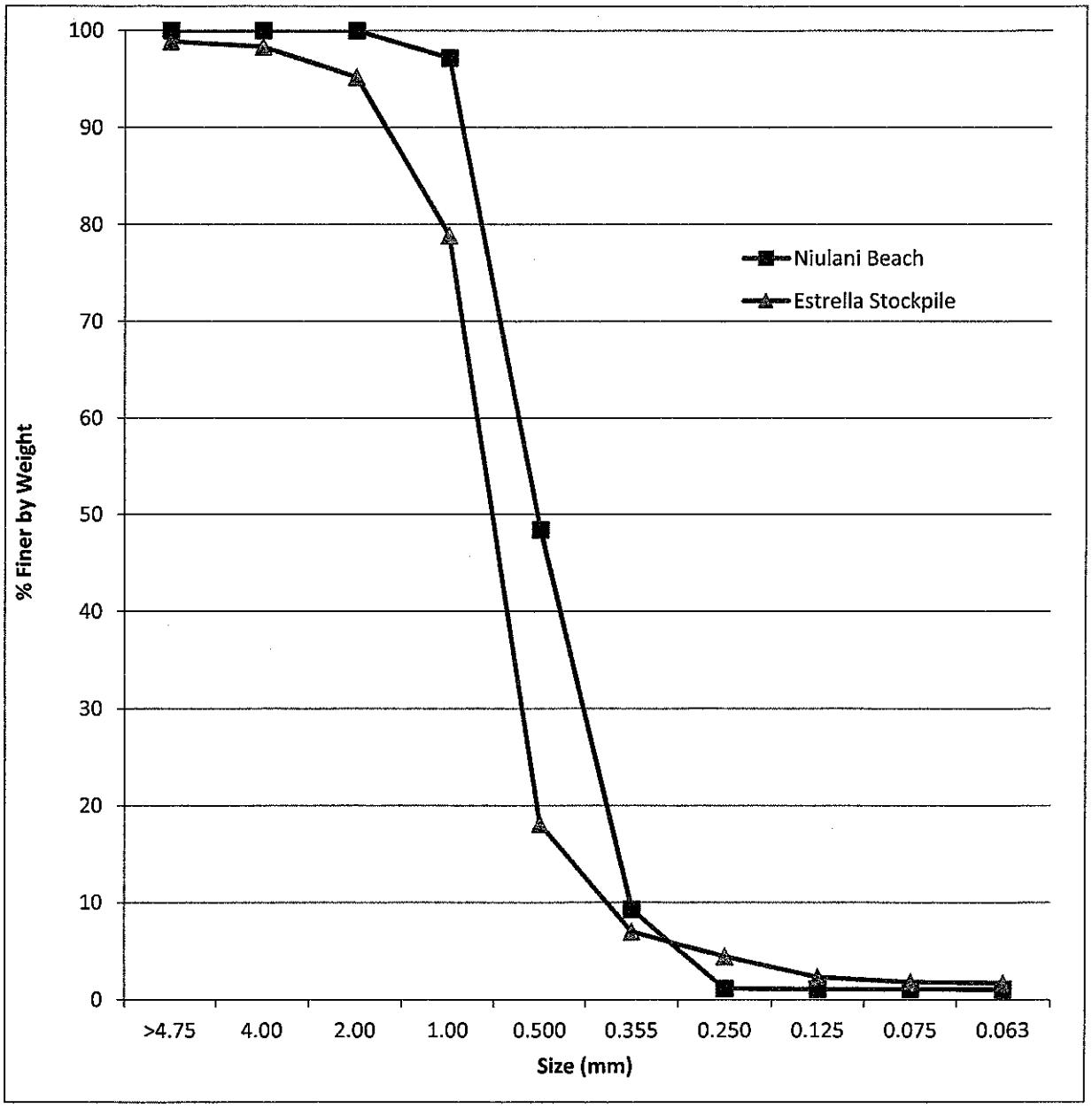
45-939 Kamehameha Highway, Suite 104
Kaneohe HI 9674 (808)234-7770 Fax: (808)234-7775

CLIENT: Oceanit
828 Fort Street Mall, Ste 600
Honolulu HI 96813
ATTN: Mike Foley / Catherine Hanna
channa@oceanit.com

AECOS Job No.:	**631**
REPORT DATE:	5/9/2025

GRAIN SIZE ANALYSIS RESULTS

Date Sampled: 04/19/25, 04/28 Analyzed by: rk, dc AECOS Log No.: **52735**
Date Received: 4/29/2025 Sample Type: sediment



AECOS, Inc.

45-939 Kamehameha Highway Suite 104
Kaneohe, Oahu, HI 96744
Tel: (808) 234-7770 Fax: 234-7775

CHAIN OF CUSTODY FORM

PROJECT FILE No.: 10231 Niulani Hui

LOG NUMBER: [052765]

CLIENT: Oceanit
ADDRESS: 828 Fort Street Mall, Suite 600
Honolulu, HI 96813

CONTACT: Mike Foley
PHONE No.: ☎ (808) 807-3880
Purchase Order No.:

☒ RUSH
☐ SEE REVERSE
SPECIAL INSTRUCTIONS

	☑	SAMPLE ID	SAMPLED DATE	TIME	SAMPLE TYPE	CONTAINER(S)		REQUESTED ANALYSES	PRESERVATION
1		Niulani Beach	4/19/25	8:30am	Sediment	1	Ziploc	Std. grain size (ASTM D1140-92 & D2217-93) and CaCO3 analyses	None
2		Estrella Stockpile	4/28/25	10:00 AM	Sediment	1	Ziploc	Std. grain size (ASTM D1140-92 & D2217-93) and CaCO3 analyses	None
3									
4									
5									
6									
7									
8									
9									
10									

CLIENTS PROVIDING SAMPLES TO THE LABORATORY SHOULD COMPLETE AS MUCH OF THE ABOVE FORM AS POSSIBLE. NOTE: NAME AND DATED SIGNATURE OF PERSON COLLECTING THE SAMPLE MUST BE ENTERED BELOW ↓. INFORMATION REQUESTED IN SHADED BOXES ABOVE TO BE FILLED IN BY THE LABORATORY.

SAMPLED BY: Bryson Gonzalez (PRINT NAME) — DATE 4/19 20 25
RELINQUISHED: (SIGNATURE) — DATE 4/29/25
RELINQUISHED: (SIGNATURE) — DATE 4/29 20 25 — TIME 8:40AM

RECEIVED BY: (SIGNATURE) — DATE 20___ — TIME
RELINQUISHED: (SIGNATURE OR INITIALS) — DATE 20___ — TIME

RECEIVED FOR LABORATORY: (SIGNATURE) — DATE 4/29 20 25 — TIME 0848
RELINQUISHED: (SIGNATURE OR INITIALS) — DATE 20___ — TIME

COMMENTS: White CoC copied onto blue

PRECAUTIONS:

DISPOSAL:

USE (BLACK) INK

RETURN SAMPLE TO CLIENT ☐

T = 27.0 °C

Appendix G:

Applicable Monitoring and Assessment Plan (AMAP)

Applicable Monitoring and Assessment Plan for Small-Scale Beach Nourishment Application

Niulani Road Hui Beach Restoration

Kapa‘a, Kaua‘i, Hawai‘i

Prepared for:

State of Hawai‘i Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, HI 96809

Prepared by:

Oceanit Laboratories, Inc.
828 Fort Street Mall, Suite 600
Honolulu, HI 96813

oceanit
innovation through engineering & scientific excellence

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TABLE OF CONTENTS

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ATTACHMENTS

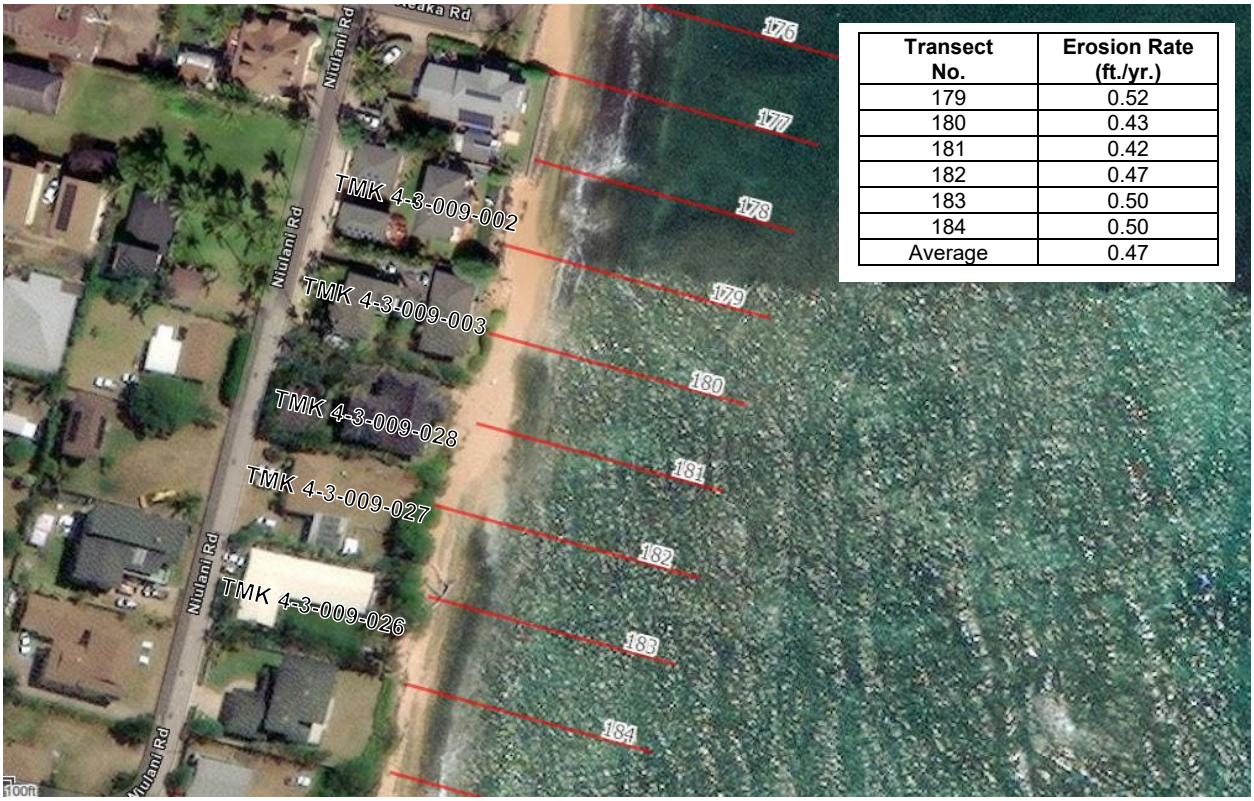
1. Introduction

This Applicable Monitoring and Assessment Plan (AMAP) is part of the Small-Scale Beach Nourishment (SSBN) application for the beach nourishment and stabilization structure construction at the shoreline fronting five (5) consecutive properties along Niulani Road: 968, 960, 950, 946 and 938 Niulani Road. The intent of the AMAP is to identify and prevent potential impacts to water quality from construction activities. Data collected as part of the AMAP will be used to determine the adequacy of the Best Management Practices (BMPs) applied during construction and help assess the impact of the project on the nearshore waters. If monitoring data show water quality impacts from construction, BMPs will be modified to protect water quality. The SSBN also includes future renourishment events over the course of fifteen (15) years after initial nourishment. This AMAP is only prepared for the initial beach nourishment and stabilization structure construction and will be amended as needed over the duration of the activities specified in the SSBN.

1.1 Project Background

The project site is located seaward of five (5) properties, Tax Map Keys (TMKs) (4) 4-3-009:002, :003, :028, :027 and :026, along Niulani Road, makai of Kūhiō Highway, on the east side of the island of Kauaʻi, Hawaiʻi. The site is situated at the middle section of the shoreline bounded by Waikaʻea Canal at the north and Waipouli Drainage Canal at the south.

Currently, the beach and shoreline fronting the subject properties show distinct erosion. The historical trend of shoreline erosion at the site was studied by the Coastal Research Collaborative at the University of Hawai'i at Mānoa (U.H.). Using historical images and data from 1950 to 2014, the University determined that the shoreline position at the site has moved inland at an average rate of about 0.47 feet per year (ft./yr.) (Figure 1).



Transect No.	Erosion Rate (ft./yr.)
179	0.52
180	0.43
181	0.42
182	0.47
183	0.50
184	0.50
Average	0.47

Figure 1. Historic shoreline erosion rates at project site (U.H. SOEST Coastal Research Collaborative, 2021)

Based on monthly Mean Sea Level (MSL) data from 1955-2024 from the nearby tidal station in Nawiliwili (Station ID: 1611400), the relative sea level trend around the project area is rising at about 1.85 millimeters per year. The Hawai‘i State Sea Level Rise Vulnerability and Adaptation Report predicted that the subject properties would be severely impacted by shoreline erosion due to a 0.5 ft. ocean level increase (Hawai‘i Climate Change Mitigation and Adaption Commission, 2017). The report predicts that we will observe this level of sea rise by about 2030, accounting for global warming assuming no reduction in greenhouse gas emissions from current levels. More recent studies by National Oceanic and Atmospheric Administration (NOAA) suggest that up to 3.2 ft. of sea level rise could occur as early as the year 2060 under extreme global warming scenarios (Sweet et al., 2017).

The project area is exposed to persistent trade winds and rough seas throughout the year. Rising sea levels and more frequent extreme high tide events cause waves to break further near to the shore, likely to exacerbate the overall erosion process. This SSBN application proposes a long-term, regional solution to manage the coastal hazards and help minimize risks to public safety by restoring the beach area and constructing three (3) rock groins to stabilize the sand nourishment.

1.2 Project Description

The project involves nourishing the existing beach with compatible, beach quality sand as well as installing three (3) rock groins to stabilize the beach fill. The initial beach nourishment event requires approximately 2,000 cubic yards (cu. yd.) of beach quality sand. 500 cu. yd. of sand is

currently available for use and is stockpiled at a nearby site, Estrella Enterprises' baseyard. This 500 cu. yd. of excess sand was previously dredged from the mouth of the Waipouli Drainage Canal as part of the 2023 Kaua'i Kailani Beach Restoration project. The remaining estimated 1,500 cu. yd. of sand needed for initial nourishment is intended to be recovered from the same canal via mechanical dredging during the Niulani Beach Restoration project. Future renourishment events are expected to occur every three (3) to five (5) years over the course of fifteen (15) years after initial nourishment, with an estimated sand fill quantity of 500 cu. yd each renourishment event. These future as-needed maintenance nourishment events are also expected to source sand from the Waipouli Drainage Canal. See Figure 2 for the location of the sand extraction site. Should the available sand volume be insufficient to complete the initial or maintenance nourishment events, an alternative sand source may be proposed and submitted to the appropriate regulatory agencies for approval.

The time for the proposed sand placement and rock groin construction, including mobilization and demobilization, will be approximately four (4) to six (6) months. Future renourishment events, if needed, may take approximately two (2) months.

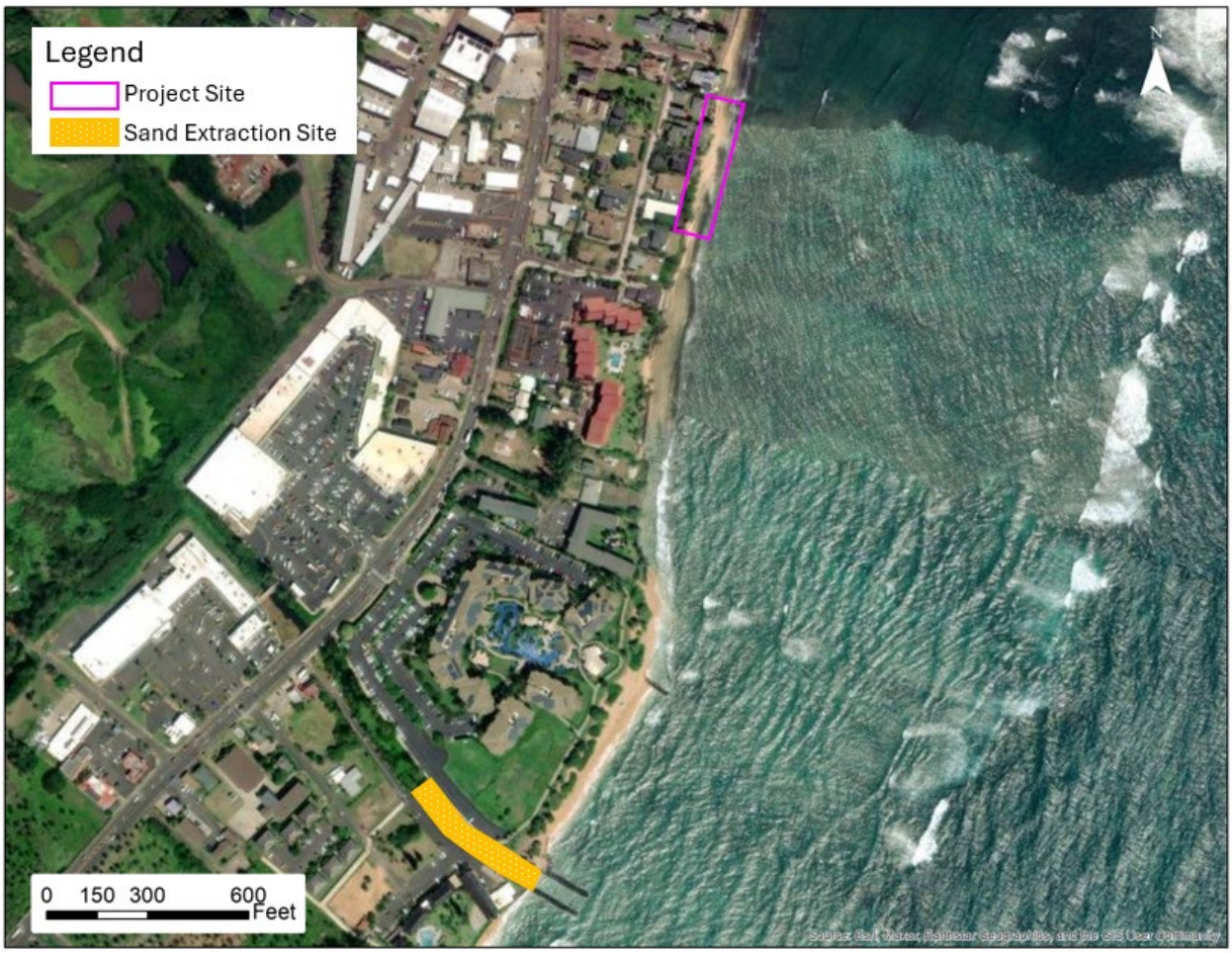


Figure 2. Location of sand extraction site

1.3 Water Quality BMPs

Water quality BMPs will be performed to ensure no leakages of pollutants are released into open ocean waters. Water qulaity BMPs will consist of a temporary wave barrier (e.g., using bulk lift bags or AquaDam) placed around the groin installation sites and a turbidity curtain along the seaward perimeter of the nourishment area to contain sediments and reduce risks from waves entering the work zone. Additionally, fiber roll containment structures will be placed around the construction access and staging areas (Figure 3) to prevent any sediment from entering the surrounding waters. A turbidity containment device will also be deployed completely around the sand recovery site. See the BMP plan sheet (Figure F) of the Niulani Beach Restoration Concepts (Appendix D) for more details.

Figure 3. Construction access and staging area

1.4 Discharge Characteristics

Permanent discharge materials will consist of beach material transferred from sand sources that will be added to the nourishment site as well as three (3) rock groin stabilization structures.

Temporary discharge materials may consist of the temporary wave barrier (with the ability to double as a platform for construction equipment), constructed by stacking triple-walled geotextile

bulk lift bags filled with dredged sand. The geotextile bags will be removed from the site and the sand contents will be used as part of the nourishment when the BMP is no longer needed. No equipment will be allowed to drive in the water; all construction will be carried out with shore-based equipment.

1.5 Environmental Description

The project site is located in Kapaʻa on the island of Kauaʻi, the oldest of the Hawaiian Islands. The climate in Kapaʻa has an average annual temperature of about 74.3 degrees Fahrenheit (°F), and ranges between about 78°F in the summer and 71°F in the winter (Giambelluca et al., 2014). The annual mean average rainfall of Kapaʻa is approximately 40.6 inches per year, with the majority of the precipitation occurring between the months of October and December (Giambelluca et al., 2013). Elevations at the site range from sea level to approximately 11 ft. above sea level. The land use mauka of the project area is residential. The site does not currently have many recreational users; however, the proposed beach restoration will increase opportunities for recreational use.

The project shoreline is part of Waipouli Beach. Currently, within the proposed project area, about 60 percent of the bottom type is limestone, 10 percent is rubble stone, and approximately 30 percent is carbonate beach sand, which rests above the underlying limestone substrate. The waters of Kapaʻa, Kauaʻi are designated Class A by the State of Hawaiʻi Chapter 11-54 Water Quality Standards for open coastal waters.

Soils specific to the project site are Beaches (BS) and Mokuleia Fine Sandy Loam (Mr). BS soils consist of coarse sand derived from coral and seashells and are excessively drained with very low runoff. Mr soils consist of well-drained soils found along the coastal plains with very low runoff (NRCS, 2017).

2. Monitoring Program

The monitoring program follows the general monitoring Guidelines for the Section 401 Water Quality Certification (WQC) projects (DOH, 2009). Construction will take approximately four (4) to six (6) months and work will be timed for low tide, low wave conditions. Photo documentation of the site during construction will be conducted. A qualified field technician will be present during in-water construction to visually monitor and photo-document for permit compliance.

2.1 Organization and Responsibilities

Table 1 provides the names, responsibilities and qualifications of the personnel involved with this AMAP. *In situ* measurements will be performed by a qualified field technician. The contractor will perform the visual observations for the entire duration of in-water work to ensure that the activities do not result in adverse impacts to nearshore waters.

Qualified field technicians will conduct *in situ* water quality monitoring for pre-construction, during construction and post-construction monitoring. Site conditions will be noted and photographs will be taken during each field monitoring event. Photographs will be made at each sampling site and in the work area during construction and will be accompanied by detailed descriptions and time and date stamps. Geographic Position System (GPS) coordinates of the monitoring sites will be recorded during monitoring.

Field tehnicians will document at a minimum, the name of technician, date, time, tidal stage, wave conditions, current, weather conditions, location and condition of BMPs, and construction activity.

2.2 Project Personnel

The roles and responsibilities of key project personnel will be further defined at the beginning of the project and implemented by the monitoring contractor. The organizational structure will ensure that all project personnel will receive proper and accurate information and instructions on quality assurance and quality control (QA/QC) procedures to be followed throughout the monitoring process.

Table 1. Project personnel responsibilities and qualifications

Personnel	Responsibilities Relating To Water Quality	Qualifications
Contractor's Construction Site Manager To Be Determined *	Responsible for overall management of construction site, daily inspection of site and BMPs, taking photographs from predetermined positions and entering observations in site log	Designated by the contractor
Monitoring Personnel Qualified Technician	Conducts field visits, obtains photographs and work descriptions, and obtains samples for water quality analysis	Trained and experienced in site safety, water sampling methodology, and application of BMPs on construction sites
Design Consultant Oceanit	Assists with design and construction issues for the project	College degree in Coastal/Civil Engineering; licensed Professional Engineer

* *Information will be provided within thirty (30) days after contract award.*

2.3 Project Schedule

Total project construction will span approximately four (4) to six (6) months. Commencement of the construction will depend on concurrence from regulatory agencies.

3. Sampling and Analysis Plan

3.1 Introduction

This section presents a plan for the implementation of the sampling and analysis activities for the project before, during, and after the construction phase. The applicable requirements are given below.

The procedures described in this section are developed to provide sufficiently detailed instructions to consistently conduct water quality monitoring and assessment activities and ensure a high level of quality assurance independent of the sampling personnel.

3.2 Objectives and Scope

The objectives of this AMAP will abide with those of the Clean Water Act (CWA), one of which is to minimize pollution of waters of the United States from construction activities. Section 401 of the CWA (33 USC 1341) provides a process for states to ensure that federally permitted activities comply with State Water Quality Standards. The permit holder is responsible for developing and implementing BMPs to avoid or minimize discharge of pollutants from the permitted activity. The purpose of this AMAP is to create an environmental awareness by photo documentation and to describe a water sampling and analysis process that will determine the effectiveness of the BMPs proposed for the project. The plan is developed to verify whether average concentrations of contaminants/parameters of potential concern measured in waters adjacent to the project site during construction activities indicate the adequacy and effectiveness of the BMPs installed and whether modifications to BMPs are necessary. Comparing the results of monitoring during construction with respective pre-construction monitoring data will show impacts on water quality and direct correction of any problems with the BMPs as well as identify whether adjustments to construction activities are necessitated. The proposed monitoring will be conducted pre-, during, and post-construction.

As discussed in Section 1.3 of this AMAP (above), temporary water quality BMPs will be performed to ensure no leakages of pollutants are released into open ocean waters. As discussed in Section 1.4 of this AMAP (above), permanent materials associated with the project are the beach fill as part of beach nourishment and three (3) rock groins.

Any water contamination event shall be reported by telephone or email to the State of Hawai‘i Department of Health (DOH) Clean Water Branch (CWB) and Department of Land and Natural Resources (DLNR) Office of Conservation and Coastal Lands (OCCL) within twenty-four (24) hours or by the end of the next business day.

In addition to the above precautions, a comprehensive water quality monitoring program will be implemented to avoid, minimize, and mitigate any potential water pollution, and modify BMPs or work procedures if contamination from work activities is detected.

3.3 Monitoring Approach

The following process serves as the framework for this AMAP. The monitoring will cover a period before, during, and after construction ends. Monitoring parameters are decided by the type of

construction and the possible contaminants the activity may release into coastal waters. For the proposed project, pH, turbidity, total suspended solids (TSS), salinity, dissolved oxygen (DO), and temperature will be monitored to establish background conditions, conditions during construction, and conditions after construction is completed. *In situ* monitoring and measurements will be conducted by personnel who are trained and experienced in performing all operations, maintenance, calibration and secondary checking activities in accordance with manufacturer guidelines.

Parameters at each monitoring site will be measured in the field with appropriate field instruments for pH, turbidity, TSS, salinity, DO, and temperature. Monitoring personnel will also perform visual inspections during monitoring and document the date, time, weather conditions, construction activities, location, condition of the BMPs and any other activities related or unrelated to construction that may impact water quality. These observations will be submitted as a part of the monitoring report. All monitoring activities shall also include photographic documentation of site conditions. All photographs related to this monitoring effort will be date- and time-stamped. The locations for photo documentation points will be marked with GPS coordinates.

The construction contractor will designate a representative to perform daily visual inspections of the construction site, including the condition of any BMPs to ensure no adverse impacts occur to coastal waters. The information recorded by the contractor's representative will also include all information provided by the monitoring personnel. A written monitoring report will be submitted to DOH CWB and DLNR OCCL within twenty-four (24) hours or by the end of the next business day.

A copy of the contractor's daily observations will be used to prepare the final monitoring report. Due to the variability associated with sample collection methodology and equipment and variability within each of the Decision Units (DUs), the monitoring consultant shall use a *MULTI-INCREMENT*® sampling approach for each of the DUs. *MULTI-INCREMENT*® is a registered trademark of EnviroStat, Inc. and all *MULTI-INCREMENT*® samples must be collected in accordance with the trademark requirements.

3.4 Sampling Decision Units

There will be three (3) DUs where water quality monitoring will be conducted. These are selected to represent baseline water quality in the vicinity of the project site (i.e., Baseline DU), water quality condition at the worksite within the area protected by the BMPs (i.e., Work Zone DU), and the area immediately outside the BMPs where the most severe impacts are expected (i.e., Impact DU). Each of the locations for the suggested DUs are shown in Figure 4.

Baseline DU will be located in the nearshore area that will be similar in character to the project site and exposed to similar environmental changes. This site should be located outside the potential area of impacts from construction activities.

Work Zone DU will be located between the temporary wave barrier BMP and the proposed construction area.

Impact DU will be located immediately outside the temporary wave barrier BMP. This monitoring area will be the most probable area contaminated if the BMP does not function as expected. The area within the Impact DU will be visually inspected.

Other areas will include any area located within the project area, but outside the DUs, where the water quality is obviously being impacted by construction activities. The monitoring consultant shall inspect the impacted area(s) and determine the sampling locations.

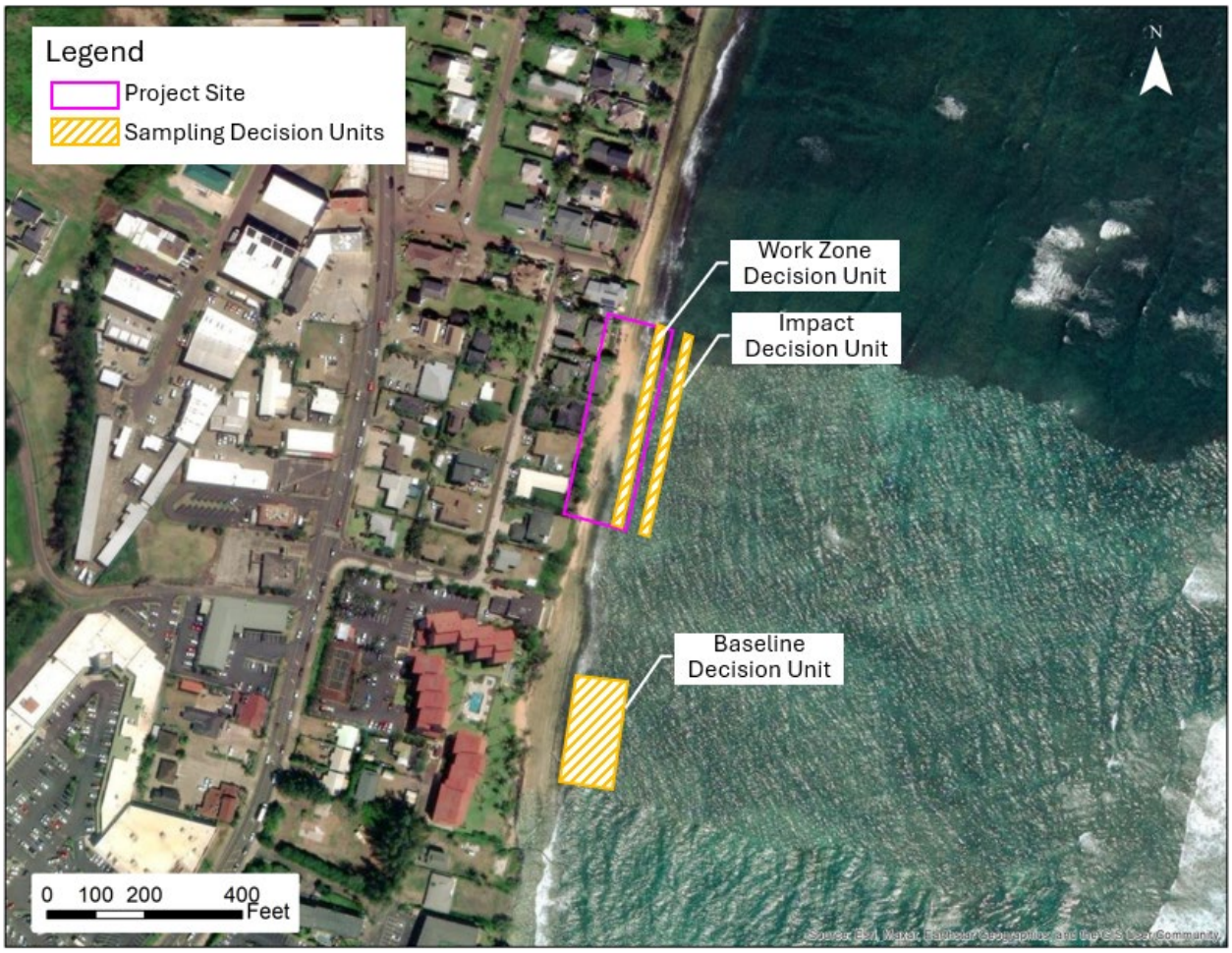


Figure 4. Sampling decision unit map

3.5 Monitoring Procedures

Monitored parameters are shown in Table 2. All water samples will be collected using a *MULTI INCREMENT*® sampling approach with an appropriate water quality probe that can measure turbidity, salinity, pH, DO, and temperature. Measurements will be made before, during, and after construction for evaluation of any changes in water quality as a result of construction.

3.5.1 Pre-Construction Monitoring

Prior to construction, average background water quality characteristics in the three (3) DUs shall be monitored before construction begins to determine existing water quality conditions. At least

ten (10) samples will be collected over a two-week period prior to the start of construction. Pre-construction samples shall be collected to represent the entire Impact DU so that meaningful decisions can be made on actionable events during construction.

3.5.2 During Construction Monitoring

During in water work, average values of the water quality parameters within the project area isolated from the nearshore waters by BMPs (i.e., Work Zone DU), the Baseline DU and Impact DU will be monitored daily. A qualified observer will also be present during construction to ensure that areas outside the BMP are not impacted by turbidity. If a plume is observed, the size and location of the plume will be described in an accompanying narrative and documented photographically. If a turbidity plume is observed outside the area isolated by the BMP, the work should stop immediately. Monitoring, including photo documentation, will be conducted daily during the entire construction period. All photographs related to this sampling effort will be date- and time-stamped.

3.5.3 Post-Construction Monitoring

Following construction, water quality will be measured twenty-four (24) hours after construction is completed and the BMPs are removed from the Baseline and Impact DUs. The monitoring will also include photo documentation and is aimed at establishing whether nearshore water quality has been impacted permanently by construction activities.

3.6 Decision Statement

The objectives of sampling, as defined by the decision statement, are 1) to determine whether concentrations of potential pollutants detected in the Impact DU during construction indicate conditions that require changes to installed BMPs to minimize further pollution discharge into the ocean and 2) to document and report site conditions to the DOH CWB and DLNR OCCL. To achieve these objectives, the quality and spatial spread of the water quality data should provide adequate and reliable information on the average concentrations of the identified pollutants.

Pre-construction sampling data will be analyzed to establish the range, geometric mean and standard deviations of the parameters measured. This will provide a baseline for average and natural spread of water quality parameters in the area. Decision values (values indicating an actionable event) are defined as the value for each parameter obtained from all data collected during pre-construction and Baseline DU sampling events. The pH should be within the range measured during pre-construction. The other parameters should not exceed the pre-construction mean plus one (1) standard deviation. An actionable event occurs when the measured value of any of the parameters of concern exceeds the above defined value.

The following sections provide guidance to develop a field sampling plan for this project. The sampling consultant will follow the guidelines as close as possible and document any deviations due to specific site conditions.

3.7 Sampling Parameters

Rationale for developing sampling parameters was discussed in Section 3.6 of this AMAP (above). Monitoring parameters and the relevant criteria are summarized in Table 2.

A 6-Series, model 6600 V2 Multiparameter Water Quality Sonde made by Yellow Spring Instruments (YSI) or equivalent is the recommended instrument for all parameters except TSS, which is analyzed in a laboratory.

Table 2. Water quality monitoring parameters

Parameter	Units	Accuracy	Min. Detectable Level	Sensi-tivity	Container Type	Holding Time	Min. Vol., mL
Turbidity	NTU	0.5 NTU	0 NTU	0.1 NTU	P,G	ASAP	100
pH	pH units	±0.2 units	0 units	0.01 units	P,G	ASAP	100
Temp.	Deg. C	±0.15º C	-5 ºC	0.01 ºC	P,G	ASAP	
Salinity	ppt	±1.0% or 0.1 ppt	0 ppt	0.01 ppt	P,G	7 days	500
DO	mg/L	0.01 mg/L or 0.1%	0 mg/L	0 mg/L	P,G	ASAP	100
TSS	mg/L				P,G	7 days	1,000

°C = degrees Celsius
ASAP = as soon as possible
DO = dissolved oxygen
G = glass
mg/L = milligrams per liter
NTU = nephelometric turbidity units
P = plastic
ppt = parts per thousand
TSS = total suspended solids

3.8 Field Methods

This section provides general field methods that may be employed by the monitoring consultant to conduct water quality monitoring. The sampling operations shall comply with established sampling protocols to ensure quality assurance and monitoring goals. All samples shall be collected using a *MULTI INCREMENT*® approach.

Water Sampling and Analysis – New or pre-cleaned sampling equipment and/or containers shall be used to receive the water samples collected from each DU (Table 2). The sample containers shall be appropriately labeled with the project name, sample identification information, and the

date/time of sample collection. A new pair of disposable gloves shall be used for collecting each sample.

Parameters with a holding time of 'ASAP' shall be collected in the specified container type and measured in the field using portable instruments such as YSI Sondes or equivalent. Salinity will also be measured with a portable instrument. TSS samples shall be delivered to an analytical laboratory in accordance with sample storage and holding time requirements. The Chain of Custody (COC) procedures shall be used to ensure possession and handling of samples to be traced from collection to the final destination. A sample COC form is shown in Attachment B. The laboratory shall be instructed to analyze the samples on a 48-hour turnaround time basis.

Sample Control – Sample control includes the methods used to identify, label, transport, and maintain the integrity of samples: sample identification, sample labeling, COC procedures and sample transport. The industry standard criteria for sample control are described in Section 4 of this AMAP (below).

Sample Handling – After sample collection, proper sample handling will ensure that changes in the constituents of interest are minimized and will guard against errors when shipping and analyzing samples. Samples for field measurement will be transferred to a glass or plastic container (such as a beaker) where parameters will be measured with field equipment. Samples for TSS to be delivered to the analytical laboratory shall be kept in insulated coolers packed with frozen gel packs or wet ice. Sample containers will be capped, placed into re-sealable plastic bags, and then placed on ice in a cooler for transport to a laboratory. Samples will be delivered to the laboratory immediately after collection. COC forms shall be placed inside sealable plastic storage bags and placed inside the sample cooler and kept below 4^{o} C. COC copies shall be maintained on-site. The monitoring consultant shall alert the laboratory personnel early to be available to receive the samples to avoid misunderstandings that might compromise the samples.

Investigation-Derived Waste – Investigation-derived waste includes disposable personal protective equipment (PPE) (e.g., gloves), disposable sampling equipment, and any other material generated that came in contact with potentially contaminated materials.

Record Keeping and Reporting – Date- and time-stamped photographs, documents, and field logs shall be maintained as necessary for implementing and recording the above-described procedures. The logbook shall contain pertinent information including location, time on site, personnel and equipment present, downtime, materials used, samples collected, measurement(s) taken, unusual incidents, and any other observations or information necessary to reconstruct field activities at that time. A Field Sample Log Sheet is shown in Attachment A.

4. Sampling QA/QC

4.1 Introduction

The procedures outlined in this QA/QC section are to ensure that:

- Samples are collected, processed, stored, shipped, and analyzed using acceptable standardized procedures;
- Quality of generated data is documented adequately;
- Results are reported completely and accurately; and
- Security and integrity of samples and data are maintained at all times.

4.2 Applicable Requirements

The applicable requirements for this project shall be the current State of Hawai‘i Water Quality Standards for discharge into Class A Waters. The “wet” water quality criterion for coastal waters at the project area will be used for determining water quality standards. Monitoring parameters and the relevant criteria to be followed are summarized in Table 2.

Procedures covered in this AMAP are specific to this individual project site. This section addresses the QA/QC plan elements described in “Guidance for Preparation of Combined Work/Quality Assurance Project Plans for Environmental Monitoring” (U.S. EPA, 1996). Elements of QA/QC related to environmental sampling are identified below and discussed in Sections 4.3 and 4.4 of this AMAP (below).

- Decision units;
- Sampling methods;
- Sampling frequency;
- Sampling preparation;
- Sample size;
- Sample containers;
- Sample preservation;
- Sample holding times;
- Sample handling;
- Sample labeling;
- Field instrumentation;
- General maintenance and calibration;
- Log keeping;
- COC record; and

- Sample shipping.

4.2.1 Sampling Preparation

Sampling activities in this AMAP will be discussed and/or reviewed by all personnel involved in the sampling activity. Deviation from this AMAP due to any unforeseen site conditions or changes in construction methods must be discussed with and accepted by DOH and DLNR before implementation. Preparation for sampling includes the following activities:

- The contractor will be responsible for contracting and coordinating with a third-party water quality monitoring consultant to execute this AMAP. The consultant will create a Field Sampling Plan to incorporate the information included in this section;
- Obtain written approval for this AMAP from DOH and DLNR.
- Calibrate field measurement instruments according to Standard Operating Procedures (SOPs);
- Obtain properly cleaned containers of appropriate sample size;
- Prepare sample bottles with labels, coolers, ice, and other necessary materials;
- Set-up field documenting forms, COC, etc.;
- Prepare instruments and safety gear specific to the job site;
- If necessary, make arrangements for a boat for sampling at the baseline and impact decision units;
- Review of all pertinent QA/QC procedures; and
- Inform laboratory of possible TSS sample delivery.

Planning should ensure that study objectives and their relative importance and priority are understood by all field personnel. This planning will ensure adequate evaluation of impacts of any field deviation from the plan on overall project goals. An equipment checklist should be prepared to ensure availability of all tools and supplies. All equipment should be cleaned and stored in working condition after each sampling episode.

4.2.2 Field Instruments

Parameters frequently measured with field instruments are turbidity, pH, temperature, DO, and salinity. All field measurements will be made with portable measurement devices such as those produced by YSI or their equivalents. These instruments should be operated by trained personnel in accordance with their respective SOPs. The following precautions should be taken when transporting and using the equipment in the field:

- Ensure that cables are sufficiently long for operation at sites;
- Electrical cables should not be excessively strained;
- Electrical connectors should be waterproof;

- Ensure that the instrument operating range and accuracy are within acceptable limits for the project;
- Instruments should be allowed to warm-up before calibration or field use;
- Sensors should be calibrated before use;
- Instruments should be field checked at the beginning of each day's measurements and before and after monitoring;
- Sensors should be rinsed with distilled water after each measurement;
- Optical surfaces should be cleaned with alcohol and lens tissue between measurements;
- Instruments should be transported in boxes designed for this purpose;
- Instruments should be protected from heating and direct sunlight; and
- External sensors should be covered and adequately protected whenever the instrument is not being used.

4.2.3 General Maintenance and Calibration

Routine maintenance inspection of field instruments should follow the manufacturer's recommendations. General procedures include:

- All rubber parts that may get immersed should be coated with silicone grease;
- Connectors should be inspected for bent or broken pins, which may cause faulty connections and flooded cables;
- Cables should be inspected for nicks, cuts, abrasions, or other signs of physical damage;
- Seals should be inspected and periodically cleaned and greased to ensure a waterproof fit;
- Desiccant should be inspected and replaced with fresh or reactivated desiccant when necessary; and
- Replace batteries regularly and also whenever low power is indicated.

Factory servicing and calibration should be made annually or when instrument malfunctions cannot be corrected by following the operations manual. Factory calibrations may also be required when certain major components of the system are replaced. Calibration log sheets shall accompany a report that uses data from the instrument. All field check results should be entered in the field log sheet. A Field Sample Log Sheet is shown in Attachment A.

4.2.4 Log Keeping

A field sample log sheet (see Attachment A) will be used each time the site is visited. This log sheet can be combined with the COC form (see Attachment B) where convenient. However, all the following information should be entered:

- Project title;

- Date and time;
- Contractor's work-in-progress;
- Sampling location/DU;
- Sample number;
- Replicate number if applicable;
- Weather conditions;
- Comments on sample condition;
- Comments on sample quality;
- Names of members of the sampling crew;
- General site conditions; and
- Photo log.

4.3 Sampling and Analysis

4.3.1 Sample Container Preparation

Sample containers will be cleaned and prepared using industry accepted cleaning and preservation procedures. The recommended sample sizes, type of containers, preservation, and holding times for samples are listed in Table 2.

Sample labels must be waterproof and must be securely fastened to the outside of each sample container to prevent misidentification of samples. Labels must contain at least the project name, sample number, preservation technique, date and time of collection, sample location, and name of sample collector. Labels should be marked with indelible ink.

4.3.2 Sample Handling

Containers for TSS samples will be capped, placed into re-sealable plastic bags, and then placed on ice in a cooler for transport to a laboratory. After sample collection, proper sample handling will ensure that changes in the constituents of interest are minimized and will guard against errors when shipping and analyzing samples. Recommended sample sizes, type of containers, sample preservation, and storage requirements for each variable will be followed (see Table 2).

4.3.3 Field Documentation

It is important throughout a sampling and analysis program to maintain the integrity of the sample from time of collection to the point of data reporting. This integrity should be achieved by using COC procedures that ensure sampling, storing and handling of samples to be traced from collection to the final destination. Proper sampling procedure documentation includes:

- Field data logbook;
- Sample labels;

- COC records;
- Field conducted measurements; and
- Sample shipment method.

4.4 Reporting

The pre-construction monitoring will assess the baseline conditions and compare them with the State Water Quality Standards. These values will be used to make a preliminary assessment of a water quality violation. Statistical methods will be used to analyze measurements and trends.

During construction, data (date- and time-stamped photographs, monitored data and field observations) will be forwarded to DOH CWB and DLNR OCCL by the close of the business day following the day of sampling if possible. The report will include field notes and site photographs.

A final report will include field notes and site photographs and will be prepared upon completion of the monitoring program. The final report will describe descriptions of construction and nourishment activities, discussion of any deviations from the proposed project design and the cause of these deviations, results from any additional environmental monitoring including sediment analyses, water quality parameters, and discussion of any necessary corrective action(s), and photographs. This report will be submitted to the DLNR within two (2) months of completion of post-construction monitoring.

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Attachment A: Field Sample Log Sheet

Field Sample Log Sheet

Date: _____ Collected By: _____

_____

Project Title: ……..

☐ Pre	☐ During	☐ Post	Construction Monitoring

Project No./File No.: _____

WQC File No.: _____

Contractor's Work in Progress: _____

_____

Rainfall Present: _____ Past 24 Hrs: _____ % Clouds: _____ Wind mph: _____

In Situ Meter Calibration Date Last		Standard	Reading		Reading
pH ___/___/20___	Field Calibrated? →	pH=7		pH=10	
Turbidity ___/___/20___		NTU=0		NTU=100	

Sample No.	Time	Location	Type	Size	Description

Samples Held In: ☐ Ice ☐ Refrigerator ☐ Air ☐ Other: _____

Samples to Laboratory (name): _____

On (date/time) ___/___/20___ at ___:___ ☐ AM ☐ PM Lab Chain of Custody No.: _____

Notes: _____

_____

Attachment B: Sample Chain of Custody

CHAIN OF CUSTODY

Please Print Legibly.

Client: _____ Acct. #: _____

Project Name / #: _____ Phone #: _____

Contact Person: _____ Email: _____

Sampler: _____ Quote #: _____

Sample Identification	Date Collected	Time Collected	Grab.	Comp.	Matrix: Soil	Matrix: Water	Matrix: Air	Matrix: Other	Total # of Containers	Remarks / Analyses Requested

Turnaround time requested *(please check one):* ☐ Normal ☐ Rush

Rush results requested by *(please check one):* ☐ Fax ☐ Phone

Fax #: _____

Phone #: _____

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

Appendix H:

Ka Pa‘akai Cultural Analysis

Ka Paʻakai o ka `Āina Analysis

Niulani Road ~ Beach Restoration Project
Waipouli Ahupuaʻa, Kauaʻi
May 2025

Prepared for:

Michael Cain, Administrator
Office of Conservation and Coastal Lands
Dept. of Land & Natural Resources
151 Punchbowl Street Room 131
Honolulu, HI 96813

By: Aukahi Cultural Consulting

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A heartfelt mahalo to all who shared their expertise and resources, as well as to my ʻohana for their thoughtful input, facilitation of interviews, research assistance, and unwavering support throughout this project. Your contributions—marked by professionalism, dedication, and a true spirit of collaboration—were instrumental to the success of this work, and I am deeply appreciative.

Table of Contents

Introduction

Description of the Proposed Project:

Niulani Beach Restoration Project and Sea Groin Installation

The proposed project is a small-scale beach nourishment project designed to address ongoing coastal erosion that threatens beach integrity and offsets the impact of the adjacent seawalls.

Location: Kawaihau District (Puna Moku), Waiohuli Ahupua`a, Kaua`i Tax Map Keys: (4) 4-3-009:002, (4) 4-3-009:003 (4) 4-3-009:028, (4) 4-3-009-027 and (4) 4-3-009:026; 968, 960, 950, 946 and 938 Niulani Road

Proposed Activities:

The conceptual beach restoration plan proposes placing up to 10,000 cubic yards of beach quality sand, constructing three boulder groins and restoring dunes with native vegetation. Currently there is approximately 390 feet (ft) of unarmored shoreline situated between two adjacent seawalls. Three short boulder groins would be constructed of un-grouted boulder stones and be installed to stabilize the newly nourished beach and offset erosional impacts caused by the adjacent seawalls. Dunes would be restored with native vegetation. Follow up nourishment would be required.

Project Area Map (outlined in red)

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Scope of Work

In Ka Paʻakai O Ka ʻĀina v. Land Use Commission (2000), the Hawaiʻi Supreme Court established a framework for government agencies to follow when evaluating proposed land and water uses that may affect the exercise of traditional and customary Native Hawaiian rights. This framework seeks to balance the protection of those rights with the reasonable accommodation of competing private development interests.

State law reinforces this by affirming that Article XII, Section 7 of the Hawaiʻi State Constitution imposes an affirmative duty on the State and its agencies to preserve and protect Native Hawaiian traditional and customary rights. Today, there is growing emphasis on this obligation—specifically, on identifying and safeguarding these rights and assessing the potential cultural impacts of proposed developments, wherever feasible.

This report is prepared for the Office of Conservation and Coastal Lands (OCCL) and follows the burial laws and rules in accordance with Hawaiʻi Revised Statutes (HRS) Chapter 6E and Hawaiʻi Administrative Rules 13-300.

Methodology

Conducting a Ka Paʻakai analysis requires both scholarly precision and deep cultural sensitivity. Grounded in Native Hawaiian values, the process uplifts the voices and knowledge of kūpuna (elders), cultural practitioners, and lineal and cultural descendants

acknowledging their profound and enduring relationship to the ʻāina (land), their traditions, and ancestral wisdom.

As a Native Hawaiian attorney and academic professional, this work is more than just legal or scholarly—it is deeply personal, spiritual, and relational. It is approached with unwavering ethical commitment: ensuring informed consent, upholding confidentiality, and giving proper credit to those who share their cultural knowledge.

I undertake this responsibility with deep gratitude—for the privilege of hearing the stories and insights of others, for the trust placed in me to carry their ʻike (knowledge), and for the chance to help safeguard cultural practices and ancestral connections to place for future generations.

Purpose

The purpose of this analysis is to:

1) Identify the scope of valued cultural, historical, or natural resources in the area, including the extent to which traditional customary native Hawaiian rights are exercised in the area; and
2) The extent to which those resources – including traditional and customary Native Hawaiian rights are exercised and will be affected or impacted by the proposed action such as access and gathering of limu, opihi, kupe'e, etc. and
3) The feasible action, if any to be taken by the agency to reasonably protect such practices if they are found to exist.

Identification of Cultural, Historical, and Natural Resources

Traditional Hawaiian cultural practices are deeply rooted in the reciprocal relationship between kanaka maoli (Native Hawaiians) and the natural environment. These practices, essential for survival, were shaped by generations of careful observation, lived experience, and intimate knowledge of place. Through mālama ʻāina—the ethic of caring for the land—Hawaiian communities developed sustainable systems that ensured the responsible use and management of natural resources.

Many of these practices have been passed down through generations and are still actively maintained in communities across Hawaiʻi today. This report seeks to identify and evaluate the cultural practices and resources specific to the Waipouli ahupuaʻa, offering insight into the traditional knowledge systems, cultural landscapes, and natural features that define the area. This section will highlight key traditional practices and significant cultural resources associated with the Waipouli region.

Note: Excerpts from cultural informants are incorporated in sections where applicable.

Environmental Setting

Waipouli ahupuaʻa is located on the eastern side of Kauaʻi in the historic district (moku) of Puna. Waipouli lies between the ahupuaʻa of Kapaʻa to the north and Olohena to the south. This

area covers about 2,966 acres and includes parts of the two major volcanic formations that helped create most of Kauaʻi's land.

Alluvium, colluvium, and terrigenous sediments—produced by the erosion of the Waimea Canyon Volcanic Series and the Koloa Volcanic Series, the primary geological events that formed Kauaʻi—are the main contributors to the island's non-mountainous landscapes. These sediments played a key role in shaping areas such as Kapaʻa, Waipouli, and Olohena (MacDonald and Abbott 1970:382–384).

Waipouli lies within the Līhuʻe Plain, a defined physiographic region (Armstrong 1973:30). During periods of higher sea levels, streams deposited terrigenous sediments farther inland due to the encroachment of the shoreline. At the same time, coral reefs expanded with the rising seas. As sea levels later receded, wave action eroded these reefs, depositing marine sediments along the shore.

According to Foote et al. (1972: Sheet 29), the soil in the project area consists primarily of Mokuleia fine sandy loam, part of the Mokuleia soil series. These are well-drained soils typical of Kauaʻi's coastal plains, formed from recent alluvium deposited over coral sand. They are commonly found alongside Hanalei, Jaucus, and Keaau soils. Generally shallow and nearly level, these soils occur at elevations from sea level up to about 100 feet above mean sea level.

The current road corridor in Waipouli lies on a sandy coastal plain, about 1,800 to 2,600 feet from the shoreline. The natural ground here is mostly made up of coralline beach sand, although modern

construction has added inland clay soils and other materials to reshape the land surface. Local testimony is that the beach sand actually extends much farther inland (mauka) than it appears today.

Cultural Background

Historical documents, maps, and photographs were researched from the Hawaiʻi State Archives; the Survey Office of the Department of Accounting and General Services; the Hawaiʻi State Library; the Bernice Pauahi Bishop Museum archives and library; Hamilton Library at the University of Hawaiʻi Mānoa; the Mission Houses Museum Library; the State Historic Preservation Division (SHPD) library; and the library of Cultural Surveys Hawaiʻi in Kailua.

Waipouli possesses a rich cultural history deeply rooted in traditional Hawaiian land management, agriculture, and oral narratives.

Place Names

Place names are profoundly important in Hawaiian history and culture as they contain ancestral knowledge, genealogy, environmental observation, and spiritual connection to the land and sea.

Place names and wahi pana (“legendary place”) (Pukui and Elbert 1968:376) are an integral part of Hawaiian culture. “In Hawaiian culture, if a particular spot is given a name, it is because an event occurred there which has meaning for the people of that time” (McGuire 2000:17). The wahi pana names were then passed on

through language and the oral tradition, thus preserving the unique significance of the place. Hawaiians named all sorts of objects and places, points of interest that may have gone unnoticed by persons of other cultural backgrounds.

Name and Meaning: The name **Waipouli** translates to "dark water" or "water darkened by an eclipse," reflecting the area's abundant freshwater sources and possibly its spiritual significance. It is possible that an eclipse of the sun was observed here and gave its name to the stream.

This interpretation is supported by the Kauaʻi Nui Kuapapa project, which documents place names and their meanings across the island.

The following list of place names of Waipouli were compiled from traditional literature (moʻolelo, chants), historical sources, maps and Māhele records. Almost all of the ʻili names were taken from the Māhele Land Commission Awards.

Place Names listed in Royal Patent #7373, to William C. Lunalilo, for Waipouli Ahupuaa, Puna district, Kauai

Hinaimakamakani: ridge at Waipouli/Kapa`a boundary
Kahilimalanai: place where the boundaries of Kapa`a, Waipouli and Olohena meet
Kainamanu: small hill at Waipouli/Kapa`a boundary
Kalaiawikiwiki: dry land field at Olohena/Waipouli boundary
Kalouulu: hau clump at Waipouli/Kapa`a boundary
Kaluapalepo: hole in rocks at seashore at Waipouli/Kapa`a boundary
Kapapa: stream at Olohena/Waipouli boundary

Kapukaili: site of old house at Waipouli/Kapa`a boundary
Kapunakaalu/Kaopunakaalu: hill of stones at Olohena/Waipouli boundary
Kaukahoku: place at Waipouli/Kapa`a boundary
Kaunawawaa/Kaumanawaa: canoe harbor at Olohena/Waipouli boundary
Kawaiolana/Kawaiholana: stream at Waipouli/Kapa`a boundary
Keahu/Heahu: marsh land at Waipouli/Kapa`a boundary
Kolokolo/Kololoku: ʻauwai at Waipouli/Kapa`a boundary
Kopaea: place at Olohena/Waipouli boundary
Kulelepali: stream at Olohena/Waipouli boundary
Kulumoa/Hulumoa: ridge at Waipouli/Kapa`a boundary
Kumunui: hole in reef at Olohena/Waipouli boundary
Laauwahea: place at Olohena/Waipouli boundary
Makahaokupanihi: waterpool at Waipouli/Kapa`a boundary
Makana/Makaua: stone at Olohena/Waipouli boundary
Panene: site of old houses at Waipouli/Kapa`a boundary
Paopai/Puu Opae: ridge at Olohena/Waipouli boundary
Pohakuao: place at edge of reef at Olohena/Waipouli boundary
Pohakuhinana: stones at Waipouli/Kapa`a boundary
Pohohoiki/Pohopohoiki: stone at Waipouli/Kapa`a boundary
Puakei/Puakii: place at Waipouli/Kapa`a boundary
Puopai/Puu Opae: ridge at Olohena/Waipouli boundary
Ulalena: large hole at Olohena/Kapa`a boundary
Waialeale: taro patches at Olohena/Waipouli boundary

1. **Historical Memory**: Place names often commemorate significant events, people, or stories (mo`olelo). They serve as markers of history embedded in the landscape.

2. **Genealogical Connection**: Many Hawaiians trace their lineage to specific places. The land is seen as an ancestor, and knowing the name and story of a place helps maintain familial and cultural identity.
3. **Environmental Knowledge**: Hawaiian place names frequently describe physical features, resources, or natural phenomena—like currents, winds, or rainfall—offering insight into sustainable land and ocean management.
4. **Spiritual Significance**: Places may carry mana (spiritual power) and may be connected to our ancestors, rituals, and sacred practices. Names help recognize and maintain the sanctity and memory of these spaces.
5. **Language and Identity**: Preserving and perpetuating Hawaiian place names supports the vitality of the Hawaiian language which in turn strengthens cultural identity and pride.

Summary of Traditional Settlement Patterns in Waipouli Ahupuaʻa

Waipouli was traditionally known for its excellent surf and it was a popular coastal area. Historical records from the Land Commission Awards (LCAs) show that people lived not only along the shoreline but also inland. House lots were established near the beach as well as farther inland, especially around areas where taro (loʻi) and dryland crops (kula) were cultivated.

While most land claims were for taro patches and farming land, one notable claim (LCA 8836) included a fishpond and wauke (paper mulberry, used for making kapa cloth). This area, known as Kapakio, was the site of the konohiki's (land manager’s) fishpond.

Homes and farming plots were scattered around this pond, with taro likely planted along the wetter edges and the surrounding flatlands used for pasture or open fields.

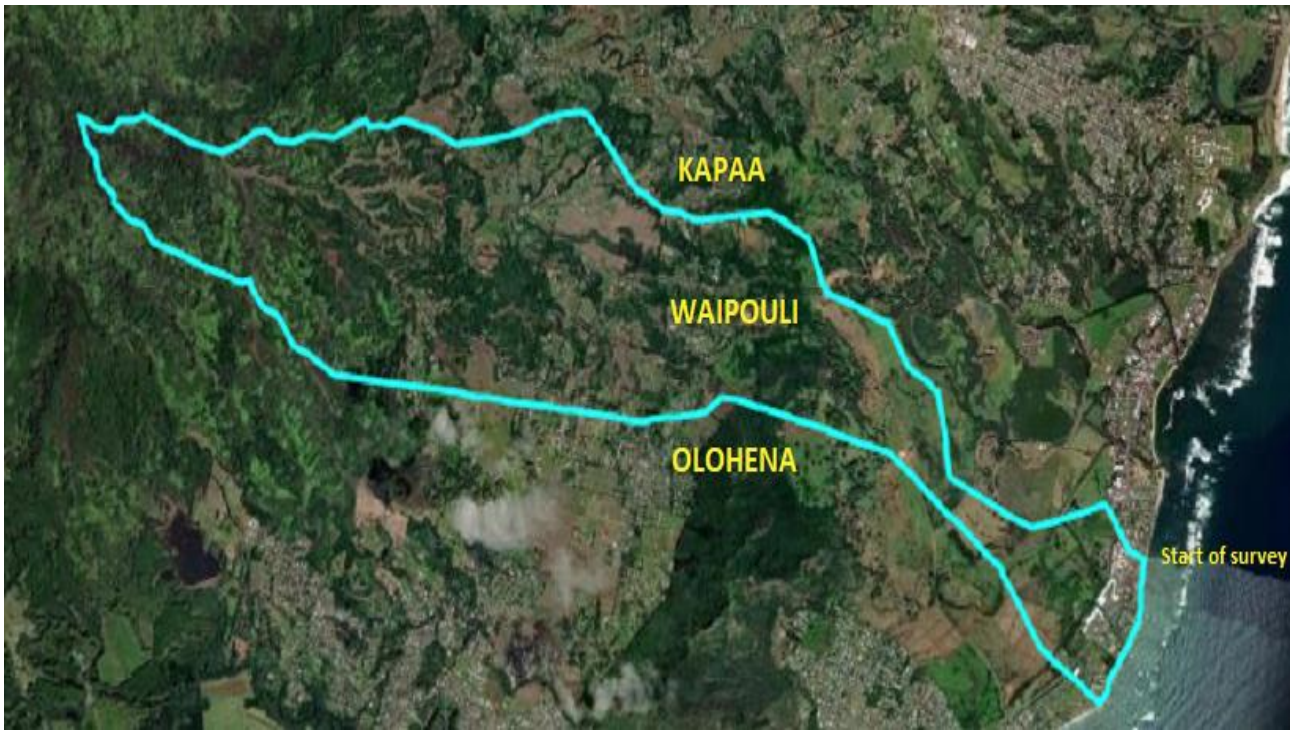
King Lunalilo received Waipouli ahupua`a in the Māhele. Later, the Land Commission awarded Waipouli to Lunalilo without survey. In 1872, Charles R. Bishop and Kanaina, Lunalilo's guardians, petitioned the Boundary Commission to survey and set the boundaries for Waipouli.

Clues to the nature of the entire ahupua'a come to light in the records of the 1872-73 Boundary Commission proceedings concerning Waipouli. The guardians of William C. Lunalilo had petitioned that the "boundaries of the Ahupua'a of Waipouli situated in the district of Puna Island of Kaua'i may be defined and settled." Four witnesses, all Hawaiians apparently familiar with the ahupua'a, gave evidence from which Duncan McBryde, the Commissioner of Boundaries, made his decision on November 7, 1872. A subsequent survey by James Gay was undertaken in June 1873. McBryde's decision and Gay's survey notes - both included in the Boundary Commission record - contain an abundance, similar to that of the Foreign Testimony entries for Waipouli LCAs, of place names.

In 1879, Royal Patent #7373 was issued with the survey.

Place names are listed in the survey. Unfortunately, the survey map was not transferred as part of the record to the Archives, so I am not sure where these places are located.

We do know the survey started at the seashore at Waipouli's boundary with Kapaa, goes inland to the mountains, then returns seaward along Waipouli's boundary with Olohena, back to the seashore.



Some of these place names are especially worth noting.

There are four names located at the seashore:

Kaluapalepo: hole in rocks at seashore at Waipouli/Kapa`a boundary

Kaunawawaa/Kaumanawa`a: canoe harbor at Olohena/Waipouli boundary

Kumunui: hole in reef at Olohena/Waipouli boundary

Pohakuao: place at edge of reef at Olohena/Waipouli boundary

Along the mauka half of the northern boundary are the "site of old houses Panene" and "old houses Kapukaili." The presence of a pig pen and two old house sites suggests there were populated areas, of which these were only three, within the mauka reaches of Waipouli before the nineteenth century. Areas at similar elevations in neighboring ahupua'a are known to have been foci of agricultural endeavors. In Wailua, south of Waipouli, Folk and Ida (1981) and Hammatt (1988) recorded, in the south fork of the upper Wailua River, irrigated agricultural plots on flood plains between small tributaries and on alluvial terraces within the river gorge. Bennett's (1931) site 110, located in upper Kapa'a, is described: "In the foothills of the mountains there are many little valleys which contain taro terraces. Single rows of stone mark the divisions with some 2-foot terraces." It is not inconceivable that the mauka region of Waipouli was similarly utilized, especially as it is characterized, like Kapa'a, by many little valleys. The house sites and pig pen would have been associated with such upland agriculture. The place names, most of which are missing on modern maps of Waipouli, culled from the Native Testimony and the Boundary Commission records, and those on some nineteenth century maps, are among the last non-physical clues to the extensive native Hawaiian activities that occurred throughout the ahupua'a. When looked at collectively, they create a poignant image of what must have been a close relationship with, use of,

and feeling for the ahupua'a by the inhabitants. In the last quarter of the nineteenth century, the upper reaches of Waipouli were planted in sugar cane by the Makee Sugar Company of Kealia. Sometime after 1886 but before the turn of the century, the marshy former taro lands in the makai portion of the ahupua'a were planted in rice and the rice fields extended into Kapa'a where a rice mill was located.

Unlike some neighboring ahupuaʻa, settlement in Waipouli stretched from the coast all the way inland. Even the most remote land claim (LCA 8838) included a house alongside taro and farming plots. Records from the Boundary Commission describe old homesites far mauka (upland), along with areas where koa and kukui trees grew and where wild birds were hunted.

Archaeological studies along the coastal terrace have confirmed long-term use of the area. Cultural layers have been found at the sites of the Coconut Plantation Resort and Uhelekawawa (also known as Uhalekawaʻa), with evidence of habitation dating back to the 15th and 16th centuries.

The strongest expression of archaeological sites (cultural layers and human burials) at Waipouli is immediately on the coast such as designated sites 1801 and 1836. Site 1836 extends as far inland as Kūhiō Highway and four burials (Site 872) have been recovered from under Kūhiō Highway. It can reasonably be assumed that other subsurface deposits and burials extend mauka of Kūhiō Highway particularly in the eastern portion of Waipouli.

Moʻolelo

The moʻolelo (story, legend, tradition) of **Kuapakaʻa**, a renowned wind expert, mentions several winds in the Kapaʻa and Waipouli areas, highlighting the cultural importance of natural elements in Hawaiian storytelling and place identity.

In the moʻolelo of **Kuapakaʻa**, a renowned wind expert, Waipouli is mentioned in relation to specific winds:

- **Kehau**: A gentle wind associated with Kapaʻa.
- **Hoʻolua**: A wind linked to Makaiwa.
- **Inuwai**: **A wind specific to Waipouli.**

These named winds underscore the cultural importance of natural elements in Hawaiian storytelling and place identity.

Kawelo's Conquest of Kauaʻi

The moʻolelo of **Kawelo**, a chief from Oʻahu, narrates his journey to Kauaʻi to reclaim his rightful position. His adventures include battles and interactions with various regions, including Waipouli. This story emphasizes themes of bravery, leadership, and the significance of familial ties. In the account shared by Green and Pukui, Kawelo's brother, Kamalama, distributes land within the plain between Waipouli and Wailua—a region Kamalama had chosen as a favorable site for settlement.

The Tale of Ka`ililauokekoa

In the legend of **Ka`ililauokekoa**, Waipouli serves as a backdrop for parts of the narrative. This moʻolelo delves into themes of

love, transformation, and the interplay between humans and the divine.

**Nā keiki o Waipouli me Honoma`ele.** Children of Waipouli and Honoma`ele. A humorous reference to very dark people. A play on pouli (dark) and `ele (black). (Pukui 2237)

Archaeology of Waipouli

Interestingly neither Thomas Thrum (1907) nor Wendell Bennett (1931) mention Waipouli in their works on heiau and the sites of Kaua'i. Waipouli appears to first be the subject of archaeological inventory survey in 1991 when Folk et al. (Hammatt 1991) located a rich cultural layer on the makai side of Kuhio Highway and on the north side of Waipouli Stream (Site 1836). This site was originally a dry island surrounded by low marsh lands on three sides (Ida and Hammatt). “At the shore, details known about the Golding property from this century were provided by Mr. Ed B. Crabbe, President of Niupia Farms, Ltd. Mr. Crabbe's grandfather bought the shoreward lands of Waipouli sometime in the first quarter of the century. A coconut grove was planted at the present site of the present Coconut Plantation to produce copra and animal feed. Mr. Crabbe's father moved his family from Maui to Kaua'i sometime in the 1940s. They occupied the former Golding house with Mr. Crabbe living in the former office. Mr. Crabbe recalled that there was indeed a surf break off Waipouli called Makaiwa. Another coastal feature of Waipouli was a "double reef' formation that somehow dissipated the force of such inundations as the 1946 tidal wave that swept over the Hawaiian Islands. Mr. Crabbe recalls that his shoreline property was used only for horse pasturage and rodeo practice. The north

side of the property, formerly the bank of the northernmost watercourse exiting from the marsh lands, was filled in when the Waipouli Drainage Canal was constructed". A portion of this canal mauka of the Kuhio Highway runs parallel to the shore; a branch exiting to the sea follows the natural drainage of the former Waipouli (or Konohiki) Stream. The canal was built in 1960 for flood control, a Department of Accounting and General Services project (information provided by Mr. Tom Kam of the Department of Land and Natural Resources). Mr. Crabbe's locating of the Makaiwa surf break off Waipouli brings this account full circle to its beginning in the legend of Ka`ililaukekoa whose "greatest desire was to ride the curving surf at Makaiwa." Legend told of the surf break, nineteenth century documentation mentioned a location suitable for a "canoe harbour", and a present-day informant has told of a "double reef' capable of diminishing the force of tidal waves and seasonal high surf. These features would have heightened the appeal of the makai portion of Waipouli for settlement by the Hawaiians. That this area may have been, in fact, well-populated in former times has been suggested by the profusion of villages, lo'i, and water course features named in nineteenth century documents. These documents further suggest that a significant population was dispersed throughout the ahupua'a.

Marine Resources at the Kahakai (Seashore)

The ocean has long been a vital source of sustenance and cultural practice for the Waipouli community, home to many skilled traditional fishermen. Fish of various kinds have historically been a key component of the Hawaiian diet, offering an essential source of protein. In addition to fishing, the gathering of limu

(seaweed) has remained an important cultural activity—both historically and in the present day—valued by practitioners for its role in diet, medicine, and as a resource connected to fishing traditions.

The extensive reef along the Waipouli coastline continues to support the gathering of iʻa (fish), limu, and heʻe (octopus). Traditional and contemporary practices in the area include spear fishing, torch fishing, throw netting, pole fishing, diving, use of lay nets, and shoreline gathering. These methods reflect a deep connection to place, and intimate knowledge of the ocean passed down through generations.

It is essential that access to the entire coastal area remains open and unrestricted for cultural practitioners and subsistence gatherers who rely on the ocean's resources. Every individual interviewed for this assessment identified active gathering practices occurring mā kai of the project area.

Overview of Shoreline Change and Erosion in Hawai`i

On the island of Kauai, the east coast is the most affected by erosion. The shoreline here is shaped by bays, reefs, and strong trade winds, and rivers sometimes cause flooding. In the Kapa`a area, natural bays were filled in over time, creating a straighter coastline. Today, erosion is especially severe in areas like Nukoli`i, north of Waipouli, and parts of Kapa`a, where entire beaches have disappeared. All parts of East Kaua`i are losing shoreline, with over 60% of the area showing signs of erosion—the highest rate on the island.

Because coastal property is so valuable, many landowners build seawalls, use sandbags, and other barriers to protect their land. While these structures may shield property, they often worsen beach erosion nearby by blocking the natural flow of sand and reflecting wave energy. This leads to beach loss and pushes erosion onto neighboring areas. The State of Hawai`i and local communities are well aware of this and working toward better coastal management solutions.

Other efforts, like adding sand to beaches (known as beach nourishment), can temporarily make the shoreline appear stable or even growing. However, this is not a natural or lasting solution. Frequent nourishment can give a false impression that the beach is healthy, when it would be eroding without human intervention.

Beach erosion is a long-term issue in Hawaii as well as along much of the U.S. coastline. As more people move to coastal areas and build homes and businesses, understanding how shorelines change over time has become more important. The U.S. Geological Survey is studying these changes to track erosion consistently across the country and help communities respond.

Coastal Features Nearby

- **Waipouli Beach**: This tranquil stretch of coastline offers picturesque sunrises and is a favored resting spot for Hawaiian monk seals. While the beach is scenic, swimming conditions can be challenging due to rocky bottoms and strong currents, making it more suitable for beachcombing and relaxation.

- **Waipouli Beach Park (Fuji Beach or Baby Beach)**: Located just north of Waipouli Beach, this family-friendly spot features a natural breakwater that creates calm, shallow tide pools, ideal for young children. The park is equipped with amenities like restrooms, parking, and picnic areas.

- **Freshwater Resources**: Historically, Waipouli was known for its abundant freshwater sources, including natural springs and streams, which supported traditional agriculture, particularly loʻi kalo (taro terraces).

Description of Traditional and Customary Practices

The identification of traditional and customary Native Hawaiian practices within the project area is a critical component of this report. This section draws upon oral histories, community consultations, archival research, and ethnographic sources to determine whether cultural practices tied to specific places, resources, or seasonal patterns continue to be exercised.

Particular attention is given to practices protected under Article XII, Section 7 of the Hawaiʻi State Constitution, which safeguards the rights of Native Hawaiians to engage in traditional customs and subsistence activities. Informed by interviews with long-term residents and cultural practitioners familiar with the ahupuaʻa, this assessment seeks to understand the historical and ongoing relationship between kānaka maoli and ʻāina in the project area,

and to identify any potential impacts that may arise from future land use.

A. Gathering Practices

Nearshore fishing and diving for he`e is a favorite pastime. Many fishers still use throw nets and pole fishing for various species however not specifically in the project area.

Limu gathering - Harvesting of edible seaweed (limu kohu, limu manauea) during certain tides but not in the project area.

Native plant gathering - Still conducted but not in the project area.

Consultation with Native Hawaiian culturalists in the neighborhood confirmed that marine resources remain deeply intertwined with both subsistence and cultural identity. For many families, nearshore fishing grounds are not only a primary source of food, but also vital spaces for the transmission of ancestral knowledge, practices of kilo (environmental observation), and the perpetuation of values such as mālama i ka ʻāina (care for the land and sea). There are traditional methods that have been passed down through generations, and specific locations—such as beyond the first “breakers” or reef are associated with customary gathering practices and seasonal cycles.

B. Religious or Ceremonial Use

Religious or ceremonial practices are recognized as protected traditional and customary rights under state and federal law. During community consultations, cultural informants stated that while there are no known historic sites or fixed ceremonial

features within the immediate project area, the ocean itself is regarded as a sacred space. They emphasized that the practice of Native Hawaiian religion does not always require a physical structure or marked site; rather, the ocean is a living spiritual entity and an integral part of their belief system.

Participants described their families still engage in spiritual practices such as pule (prayer), hi`uwai (ritual cleansing) and offerings to ancestral and others in various locations along the coast. These ceremonies are closely tied to cultural identity, environmental stewardship, and the intergenerational transmission of values. As such, even in the absence of documented historic sites, the ocean adjacent to the project area holds cultural and religious significance and should be treated with care and respect in planning and decision-making.

C. Access and Stewardship Practices

Based on community input and site observations, the project area is not commonly used for traditional fishing or gathering because it is not easily accessible. Physical access to the shoreline is significantly limited by two existing sea walls located at either end of the area, which effectively restrict entry from adjacent public spaces. As a result, the area has not been a regular site for cultural practices. In addition, community members noted that more accessible and culturally valued shoreline areas exist on the north side of the district, where beaches are broader, safer, and more suitable for traditional use.

D. Burials – Nā Iwi Kūpuna

The practice of burying, caring for, and protecting **iwi kūpuna** (ancestral bones) is a deeply sacred and culturally significant responsibility in Hawaiian tradition. Iwi kūpuna are not just bones; they are the physical remains of our ancestors and are considered sacred. They carry **mana** (spiritual power) and represent the ongoing presence of our kūpuna among us.

The protection of iwi kūpuna is a kuleana—a sacred obligation that binds us to our heritage, our ʻāina, and future generations. Disturbing burial sites or mishandling iwi is an offense to both our ancestors and our values.

On December 9, 2021, unidentified human skeletal remains were inadvertently discovered in the project area (950 Niulani Road) during ground disturbing work. Several human bone fragments were exposed during installation of a temporary sandbag reaining wall by Silliman Construction Inc. A letter of determination was issued by the State Historic Preservation Division on January 4, 2022 to relocate (burial sites three and four and to preserve in place (burial sites one, two, five, six and seven).

The legal framework for iwi protection in Hawaii consists of the state constitution, the historic preservation chapter or Chapter 6-E of the Hawaii Revised Statures; section 13-300 of the Hawaii Administrative Rules and other rules implementing Chapter 6E and court decisions that interpret and enforce those provisions.

To ensure that kanaka maoli are given the opportunity to be involved in decision making to properly care for iwi kupuna, the state legislature granted explicit roles for lineal and cultural

descendants, who may make recommendations for the disposition of iwi kupuna.

There is a presumption in the law to preserve burials in place whenever possible. When iwi kūpuna are returned, reinterred, or properly cared for, it is a form of setting things right. It brings spiritual balance, healing, and restores respect and dignity to the ancestors.

Burial Treatment Plan

The discoveries of nā iwi kūpuna in the project area prompts careful consideration during the development phase and construction project.

A Burial Treatment Plan (BTP) should be developed in consultation with the State Historic Preservation Division (SHPD), the Island Burial Council, and recognized Native Hawaiian descendants affiliated with the area. This plan should outline protocols for the identification, documentation, consultation, and appropriate treatment of the human remains that were encountered during construction in 2021.

The implementation of these measures aligns with the intent of Hawaiʻi Revised Statutes (HRS) Chapter 6E and demonstrates respect for the cultural and spiritual significance of iwi kūpuna.

Coordination with Lineal and Cultural descendants

Recognized lineal descendant Milton Ching has come forward to provide guidance and assume cultural responsibility for the care of iwi kūpuna associated with the project area. He is recognized

by the Kaua`i Ni`ihau Island Burial Council and the State Historic Preservation Division.

The involvement of descendants is critical to ensuring that all burial-related decisions reflect traditional Hawaiian cultural values, familial responsibilities, and proper protocol. This consultation should be integrated into both the development of the Burial Treatment Plan (i.e. Burial Site Component of a Preservation Plan and an Archaeological Data Recovery Plan per HAR-13-300-40) and any monitoring or reinterment efforts that may follow. Such coordination will help maintain cultural integrity and foster respectful stewardship of the site.

Decisions regarding the treatment, preservation, or relocation of human burials should be made in consultation with lineal and cultural descendants, culturally affiliated communities, and other relevant stakeholders. Such consultation is essential to ensure that the treatment of human remains is guided by respect, cultural sensitivity, and ethical responsibility. This process should prioritize the values, beliefs, and wishes of descendant communities and comply with applicable local, state and customary laws, including the protection of cultural heritage and Indigenous rights.

Cultural Sensitivity and Preservation

The Burial Council district representative was present during the site visit in 2021 when the burials were discovered. In a recent interview for this report, she expressed serious concern that removal of the sandbags will result in the exposure of nā iwi

kūpuna that were left in place. She emphasized that opening the area could allow seawater intrusion due to wave action, leading to sand displacement, further endangering the burials. To safeguard the integrity and sanctity of the site, the area should remain covered and protected to prevent erosion or disturbance until an appropriate, culturally sensitive solution is approved and implemented.

If the burials are to be relocated even temporarily, environmental shelters should be erected or shade structures to avoid exposure to sun, wind, and rain.

Ethical and Legal Considerations

- Always consult with lineal/cultural descendants since Native Hawaiian remains are involved.
- Avoid disturbance unless absolutely necessary—in situ preservation is preferred if the burials can be protected.

Cultural Community Consultation

Native Hawaiian cultural consultation is critically important for the **Ka Paʻakai o ka ʻĀina** analysis because it is the primary method to meet the legal standards. It ensures that decisions about land use respect and integrate Native Hawaiian cultural values, practices, and traditional knowledge.

Consultation helps identify and protect cultural practices. Long-term residents often carry oral histories and localized knowledge passed down through generations. This can include information

about land use, cultural practices, significant events, and changes to the landscape. Understanding the values, priorities, and concerns of those who have deep ties to a place ensures that projects are more responsive to community needs and less likely to cause harm or conflict.

Native Hawaiian cultural practitioners possess generational knowledge about the land (ʻāina), including its spiritual, historical, and ecological significance. This knowledge is vital for understanding the full impact of a proposed project.

Many places in Hawaiʻi hold deep cultural, religious, or ancestral significance. Without consultation, these sites may be overlooked or mischaracterized, leading to irreversible damage. There were no sacred and historic sites identified in the area.

Genuine consultation builds trust and ensures that community voices are heard, respected, and considered in the planning process. It fosters more equitable, inclusive, and sustainable decision-making.

As part of the analysis, Hawaiian organizations, government agencies, and community members were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential impacts within the project area.

Approach

1. Cultural Sensitivity is the key to successful consultation. It requires that you do your homework of learning about the community's history and customs before reaching out. Respectful and culturally appropriate language must be used and open-ended questions allowed the conversation to flow naturally. Most importantly, you must be humble, after all you are the one that is seeking their knowledge, and their time and stories are valuable.
2. Build Trust and Relationships. Ideally you start with a personal connection. I was very fortunate to get introduced through a mutual contact who was also a respected community member. Explaining my purpose in meeting with them clearly was important as transparency matters and they want to know who I am, who my family is, what I was doing and how their input would be used. Consent was obtained to share their stories although I was prepared to respect their wishes if they declined.
3. Knowledge of the culturalists that shared information is greatly valued and their contributions should be acknowledged if they desire. A mahalo gift is always provided as a respectful (and not transactional) gesture.

Cultural Informants with ancestral connections or kuleana to the ahupuaʻa

Name	Ahupua`a affiliation	Years Residing in Area	Relationship to area	Cultural Practices Shared
Milton Ching and Family	Waipouli	65 +	Lineal Descendants (recognized by KNIBC)	Burials
Carol Lovell	Kawaihau district	70+	KNIBC member representing Waiohuli	Burials
Ian Costa	Waipouli	60+	Generations of family lived in Waipouli	Ocean related
Kaina Ludington	Waipouli	84	Generations of family lived in Waipouli	Ocean related, seasonal knowledge
Mei Lin Poai Kanakaole	Kapa'a	50+	Generations of family lived in Kapaa and vicinity	Ocean worship, prayer at ocean, limu gathering, family ceremonies
Nancy McMahon	Kaua'i island		Kaua'i archaeologist	General
Lemana Damate	Statewide		Aha Moku, E.D	General
Rocky Kaluhiwa	O`ahu		Aha Moku Representative	General
Office of Hawaiian Affairs	Statewide		Native Hawaiian advocacy	General

Identification of Cultural Informants

Invitations to consult were sent to the cultural informants and native Hawaiian organizations above. Interviews were conducted with kupuna individuals and families with cultural or historical knowledge and to the extent possible, a genealogical relationship to the area. Cultural informants were contacted to: (1) identify potential knowledgeable individuals with cultural expertise and knowledge of the project area and surrounding vicinity, and (2) identify cultural concerns and potential impacts relative to the project. An effort was made to locate informants who either grew up in the project area or who, in the past, used the area for cultural purposes.

Letters were sent to the Office of Hawaiian Affairs, and Kaua`i Ni`ihau Island Burial Council Rep. Carol Lovell who I interviewed for this report. A telephone interview was held with Aha Moku E.D Leimana Damate and Aha Moku Rep. Rocky Kaluhiwa. Kanaka maoli long time residents such as Kaina Ludington and Ian Costa were interviewed and letters were sent to residents Ken Nakazawa and Grace Tokioka. Emails and phone calls were exchanged with Nancy McMahon, long-time Kaua'i archaeologist, owner EA Associates, and lineal/cultural descendant and former DOCARE officer Milton Ching.

Once participants were identified, she/he was contacted and interviewed. The analytical framework relies on kama`aina

testimony to establish the existence of traditional and customary rights and the exercise of such rights in the project area.

Excerpts from the interview are used throughout this report, wherever applicable.

Results of Community Consultation

Community consultation research conducted yielded the following results:

1. According to Mr. Costa whose family has lived here for many generations, the neighborhood has changed greatly over the years. The experiences he shared offered a nuanced understanding of the area's ecological, cultural, and social changes over time, insights that are critical for accurate assessments and responsible planning. He mentioned that the homes adjacent to and mauka of the Project area are now occupied mostly by non-Hawaiian immigrants and most are vacation rental properties.

2. All participants agreed that the reef adjacent to the Project area has changed with less fish and seaweed over time. Fish like kūmū (white saddle goatfish), ʻāweoweo (bigeye), kala (unicorn fish), manini (convict tang), uhu (parrotfish), weke ula (red goatfish), menpachi, and tako (squid or octopus) were reported by all participants to have been once abundant. Limu kohu (seaweed) and limu kala (seaweed that kala fish feed on) were also reported by Mr. Kaina Ludington to have been abundant.

3. All participants attributed the depletion of ocean resources near the Project area to the following factors: predators like the Hawaiian monk seal, sharks, and turtles; windsurfing activities; and the introduction of invasive species like taʻape (blue stripe snapper) and roi (peacock grouper) claimed that the fish and seaweed have become less abundant because of the Hawaiian monk seal, sharks, and turtles.

4. One of the primary concerns that all participants shared confirmed the numerous burials that exist on the beach, in the water and certainly within or near the Project area. They indicated there is a high likelihood of finding iwi in the sand of the Project area and to notify and engage the descendants of the area for guidance.

5. Regarding burials, Kaina Ludington remembers finding iwi and skulls while out diving. When he went home, his grandmother told him to take it back to where it was found and rebury it in the sand.

6. Ian Costa shared concerns regarding protecting against project-related contamination of the nearby marine resource system since the resources are considered culturally valuable to Native Hawaiians.

7. For the Po'ai, Costa, Ching and Ludington family their roots go back through many generations and their connection to land and sea transcends emotion, ownership or residency. It is a living relationship grounded in ancestral memory, cultural knowledge,

and spiritual responsibility. The shoreline is not merely a boundary, but a familiar relative—known, named, and loved.

Assessment of Potential Impacts

As part of the Ka Paʻakai o ka ʻĀina framework established by the Hawaiʻi Supreme Court, this section evaluates the potential physical, cultural, and environmental impacts of the proposed project. The analysis is grounded in the State's constitutional obligation to preserve and protect Native Hawaiian traditional and customary practices. It considers whether the project may result in significant physical changes to the landscape, disrupt access to cultural sites, or adversely affect the continued exercise of cultural practices in the area. The following questions guide this impact assessment:

1. Will the proposed project result in a significant physical change to the geographical landscape of the area?

2. Will it alter or limit access to sites used for traditional practices such as fishing, gathering, or religious observance?

3. Could the project impact known or potential cultural resources, including burials or wahi pana (storied places)?

4. How might changes to the natural environment affect the continued exercise of cultural rights and responsibilities?

Will the proposed project result in a significant physical change to the geographical landscape of the area?

Yes, but in a managed way. The proposed project will alter the shape and structure of the shoreline by adding sand and installing groins. These changes are designed to improve the beach's stability and resilience. While the beach will look different from its current eroded state, the changes aim to mimic a more natural shoreline that likely existed in the past, before the construction of nearby sea walls.

While sandbags currently serve as effective protective measures, the removal of the sandbags and the construction of three sea groins may possibly modify coastal processes. Such changes may pose a heightened risk to cultural sites, possibly including subsurface cultural materials due to shifting sands and destabilized terrain. Careful consideration and mitigation may be necessary to safeguard these sensitive resources.

Of course, the entire intent and design of these sea groin structures and the huge amount of new sand which will be brought in for the required beach restoration/replenishment goal is meant to closely mimic and restore natural sediment transport as was previously the case. As we know, the two concrete seawalls (at the north and south ends of the five-lot project) that have been grandfathered in by DLNR, and required removal of all the recently installed sandbags, necessitate the installation of the groins to stem further erosion. Monitoring and mitigation are recommended.

Will it alter or limit access to sites used for traditional practices such as fishing, gathering, or religious observance?

Not likely. The project area fronts only five properties and is situated near a larger, more accessible beach area commonly used by cultural practitioners and gatherers. While access to this broader coastal zone remains available, informants expressed concern that construction activities or alterations to shoreline access—whether temporary or permanent—could disrupt customary practices such as the limu beds, fishing, or engaging in quiet reflection at wahi pana (storied or sacred places). Should access be restricted during or after construction, it may impede the exercise of constitutionally protected traditional and customary rights. It is therefore essential to ensure continued, unobstructed access for cultural practitioners throughout the duration of the project and beyond.

Could the project impact known or potential cultural resources, including burials or wahi pana?

Yes. The presence of previously identified iwi kūpuna in the project area underscores the likelihood of additional cultural resources being present. Again, ongoing monitoring is recommended. The cultural landscape of Waipouli is a place well known for many native burials according to the long-time families of this area including lineal descendants and cultural practitioners. I understand that except for the removal of the sandbags and installation of the groins, excavation will be quite minimal, as the major focus of the project is beach replenishment and restoration by bringing in a massive amount of sand.

How might changes to the natural environment affect the continued exercise of cultural rights and responsibilities?

Changes such as altered shoreline dynamics, water quality degradation, or vegetation loss could have cascading effects on traditional resource gathering and spiritual practices. For example, disruption to limu beds, fishing grounds, or coastal trails may reduce access to or the health of these resources, thereby impacting intergenerational knowledge transmission and cultural continuity. Maintaining environmental integrity is therefore essential to preserving cultural integrity.

Recommended Mitigation Strategies ~ Cultural Informants

The following mitigation measures and recommendations reflect the manaʻo (perspectives) and concerns expressed by kūpuna, cultural practitioners, recognized descendants and the Burial Council representative as an important component of the Ka Paʻakai analysis.

They are intended to ensure that cultural practices are respected and protected, iwi kūpuna are treated with the utmost care and dignity, and that any adverse effects of the proposed project are appropriately avoided, minimized, or offset to the extent feasible.

Protecting Burials and Cultural Sites

- Coordinate with the Kauaʻi/Niʻihau Island Burial Council, SHPD, and lineal/cultural descendants before any ground disturbance begins.

- Maintain or enhance physical protections (e.g., keep sandbags or install culturally appropriate barriers) around known iwi kūpuna to prevent exposure due to shifting sands or wave action.

- Develop and implement a Burial Treatment Plan for the burials discovered in 2021, in consultation with the Burial Council and Native Hawaiian descendants.

- Maintain sandbag protection over iwi kūpuna to prevent exposure and disturbance from shifting sands and seawater.

- To safeguard the integrity and sanctity of the site, the area should remain covered and protected to prevent erosion or disturbance until an appropriate, culturally sensitive solution is approved and implemented.

- If the burials are to be relocated even temporarily, environmental shelters should be erected or shade structures to avoid exposure to sun, wind, and rain.

Preserving Access to Cultural Resources and Practices

- Ensure that access to shoreline areas for traditional practices (fishing, limu and heʻe gathering, spiritual observances) remains open and unobstructed during and after construction.

Ongoing Cultural and Archaeological Monitoring

- Require qualified archaeological and cultural monitors (preferably Native Hawaiian with ties to the area) to be present during all phases of earth-disturbing activity. Their presence will ensure that any inadvertent discoveries are handled respectfully and in accordance with cultural protocols, and community expectations.

- If previously unknown cultural resources are encountered, establish a clear stop-work protocol and notify appropriate authorities and cultural representatives immediately pursuant to state law.

Minimizing Environmental Impacts

Mitigate all Project-Related Disturbance: Ground disturbing activities associated with the current project consists of careful tree removal, grubbing vegetation from the shoulder of the road along the sea wall and trenching for the concrete rubble masonry (CRM) wall. All these actions must be carefully mitigated.

- Associated with the current project consists of Design project elements to avoid unnecessary disturbance to

natural features like sand dunes, limu beds, or water sources connected to cultural use.

- Use erosion control measures that are compatible with the coastal ecosystem to prevent further environmental degradation

- Ian Costa shared concerns regarding protecting against project-related contamination of the nearby marine resource system. He recommends mitigation measures be in place prior to and during the construction to ensure that contamination does not enter the ocean.

This assessment reflects both community concerns and professional observations and is intended to support informed decision-making and appropriate mitigation strategies.

Long-Term Benefits to the Property Owners

While the proposed project seeks to mitigate the loss of a portion of the property due to shoreline erosion and necessary preservation measures, there are also meaningful long-term benefits for the landowner. Long term benefits include restoration of the beach area and improvement of the natural shoreline processes. By engaging in culturally sensitive planning, complying with legal and regulatory protections for iwi kūpuna and other cultural resources, and implementing appropriate

mitigation strategies, the property owners demonstrate responsible stewardship of the land. Among the Hui members is Mrs. Ota who has been in her home for over 7 decades. Her family and other Hui members are very sensitive to these issues and intend to comply with the letter and spirit of these recommendations.

This approach not only minimizes potential legal and community conflicts but also strengthens relationships with Native Hawaiian stakeholders and the broader community. In the long term, preserving cultural integrity and contributing to sustainable shoreline management can enhance the property's value in terms of legacy, environmental stability, and alignment with broader public trust and conservation goals.

What's at Stake Without Project Mitigation

The project clearly incorporates cultural and community input with respect, protection, and long-term sustainability

If the project proceeds without necessary modifications or cultural safeguards, there are serious and far-reaching consequences. Culturally, the disturbance or exposure of iwi kūpuna (ancestral remains) represents a profound violation of Native Hawaiian values, disrupting sacred relationships to the ʻāina and inflicting harm on descendant communities. Legally, failure to protect traditional and customary rights, burial sites, and historic resources could result in noncompliance with state laws, potentially halting the project or leading to costly legal challenges. Environmentally, the unmitigated alteration of the

coastline could increase erosion and destabilize both the physical and ecological landscape. Most importantly, proceeding without appropriate consideration to identified cultural concerns would erode public trust, damage relationships with cultural practitioners, and undermine the landowner's standing as a responsible steward of the land. Modifying the project to incorporate cultural and community input is essential to balance development with respect, protection, and long-term sustainability.

Conclusion

This Ka Pa`akai o ka `Āina impact assessment report reaffirms the cultural significance of the project area and its surrounding landscape to Native Hawaiian descendants and practitioners. While no ceremonial sites or historic structures were identified within the immediate footprint of the project, the adjacent marine environment holds deep spiritual and subsistence value. Long-term residents and lineal descendants emphasized the ongoing importance of traditional practices such as fishing, ocean-based ceremony, and cultural stewardship, which continue to be exercised in the broader ahupuaʻa.

The presence of iwi kūpuna within the project area underscores the need for continued cultural sensitivity and responsible planning. In response, the project team commits to working collaboratively with lineal descendants, cultural practitioners, and appropriate agencies to ensure that traditional and customary practices are respected, protected, and upheld throughout the life of the project.

This report fulfills the requirements of the **Ka Paʻakai o ka ʻĀina** framework by:

- **Identifying** traditional and customary practices historically and currently exercised in the area;

- **Determining the extent** to which these practices may be affected by the proposed action; and

- **Recommending feasible mitigation** measures that ensure protection of constitutionally protected Native Hawaiian rights.

This commitment is grounded not only in compliance with **Article XII, Section 7** of the Hawaiʻi State Constitution and **HRS Chapter 6E**, but in a broader kuleana (responsibility) to respect and honor the relationship between kānaka maoli and ʻāina (land and sea). The project team affirms its ongoing dedication to supporting cultural continuity and safeguarding the integrity of Native Hawaiian practices now and for future generations.

Mitigation efforts should reflect not only regulatory compliance, but also a genuine commitment to cultural sensitivity, community engagement, and long-term stewardship of place.

Mahalo!

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Burial sites located at 950 Niulani Road, Kapaa, Kauai Island, Hawaii.

Burial 1: N 2440013/ E 467179

Burial 2: N 2440010/ E 467178

Burial 3&4: N 2440020/ E 467179

Burial 5: N 2440011/ E 467179

Burial 6: N 2440004/ E 467176

Burial 7: N 2440017/ E 467181

Figure 1. Site map of the project area and the location of the burials.

Figure 2: USGS Kapa’a Quad Location of the property

Figure 3: Sand pile by the ramp where Burials 3 and 4 are located

Figure 4: Sandbag wall being constructed and location of the burials are under the black cloth

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

January 4, 2022

Don and Cheryl Dale
29462 Kensington Dr.
Laguna Niguel, CA 92677

LOG NO: 2022PR01646
DOC NO: 2201.KH01

Aloha Mr. & Mrs. Dale,

Subject: **Determination of Inadvertent Discovery of Human Skeletal Remains SIHP # 50-30-08-02419 encountered at 950 Niulani Road, Kapaa Ahupua’a, Puna District Kauai Island, TMK: (4) 4-3-009:028.**

Discovery

On December 9, 2021, unidentified human skeletal remains were inadvertently discovered at 950 Niulani Road during ground disturbing work. Several human bone fragments were exposed during installation of a temporary sandbag retaining wall by Silliman Construction Inc., Dean Silliman. All work in the area halted upon discovery. Notification was made to State Historic Preservation Division (SHPD) Burial Sites Specialist, Kauanoe Hoomanawanui, David Buckley, Kauai Lead Archaeologists, and Kauai Niihau Island Burial Council (KNIBC) Kawaihau Geographic Representative Carol Lovell. A site visit was conducted and David Buckley of SHPD confirmed the exposed bone remains of a partially insitu burial site. He identified the burial as human and was preserved in place. KNIBC Kawaihau Geographic Representative, Carol Lovell agreed. Following further investigation of the area it was evident coastal erosion had exposed additional scattered human skeletal remains. SHPD instructed an archaeologist be contracted and the surrounding sand be screened along with archaeological monitoring of all further work in the project area.

On December 9, 2021, Exploration Associates LLC, Nancy McMahon was contracted as the archaeological firm to remain compliant during this process. On December 21, McMahon notified SHPD of additional burial sites that were located in an eroded area along the shoreline. The second burial site was identified as insitu and preserved in place. Burial sites three and four were found highly disturbed and located on the shoreline. SHPD recommended retrieval of the fragments and temporary curation on site securely. In further inspection, burial sites five, six and seven were found exposed insitu along the eroded slump area and preserved in place. SHPD suggested internment of burial sites three and four fragments while burial site seven was

exposed.

Jurisdiction

SHPD assumes jurisdiction over the disposition of the burial as the find is human and in existence for more than fifty years.

Ethnicity/Age

Ethnicity of the first burial is presumed Native Hawaiian based on other known Native Hawaiian burials and cultural layer features in the area and the age is of adult. The second burial is probable Native Hawaiian based on the flex position and other known Native Hawaiian burials and cultural layer features in the area and the age is of adult. The third and fourth burials were presumed Native Hawaiian based on other known Native Hawaiian burials and the ages were undetermined. Ethnicity of the fifth burial is probable Native Hawaiian based on the flex position and other known Native Hawaiian burials and the age is of adult. The sixth burial is presumed Native Hawaiian based on the flex position and other known Native Hawaiian burials and the age is of adult. Ethnicity of the seventh burial site is presumed Native Hawaiian based on the flex position and other known Native Hawaiian burials and the age is of adult.

Determination

SHPD makes the determination for relocation of burial sites three and four based on the following:

- Landowner agrees to relocate on site.
- KNIBC Kawaihau Geographic Representative recommends relocate on site.
- Possible harm from coastal erosion if left in place.

SHPD makes the determination to preserve in place burial sites one, two, five, six and seven based on the following:

- Landowner agrees to preserve in place.
- KNIBC Kawaihau Geographic Representative recommends preserve in place.

We look forward to receiving a Burial Site Component of a Preservation Plan and Archaeological Data Recovery Plan per HAR 13-300-40. Should you have any questions or concerns, please contact Ms. Kauanoe Hoomanawanui, Burial Sites Specialist at Kauanoe.m.hoomanwanui@hawaii.gov or (808) 896-0475.

Sincerely,

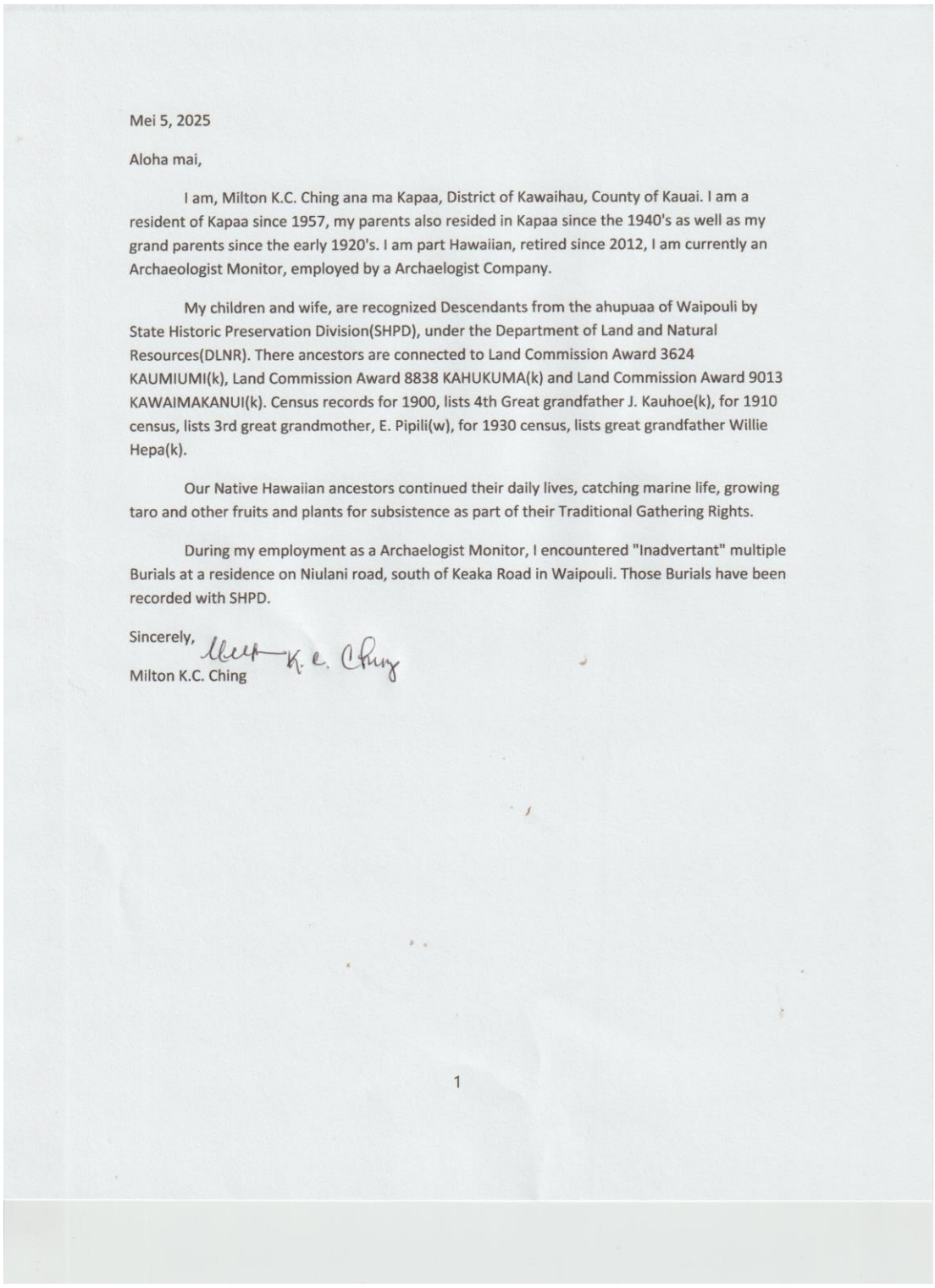
Hinano Rodrigues

Mr. Hinano Rodrigues

History & Culture Branch Chief
State Historic Preservation Division

Ccd:
Kauai Lead Archaeologist, David.Buckley@hawaii.gov
Exploration Associates LTD, Nancy McMahon explorationassociates@outlook.com

Figure 5: Letter of Determination State Historic Preservation Division for Inadvertently Discovered Burials at Niulani Road



Mei 5, 2025

Aloha mai,

I am, Milton K.C. Ching ana ma Kapaa, District of Kawaihau, County of Kauai. I am a resident of Kapaa since 1957, my parents also resided in Kapaa since the 1940's as well as my grand parents since the early 1920's. I am part Hawaiian, retired since 2012, I am currently an Archaeologist Monitor, employed by a Archaelogist Company.

My children and wife, are recognized Descendants from the ahupuaa of Waipouli by State Historic Preservation Division(SHPD), under the Department of Land and Natural Resources(DLNR). There ancestors are connected to Land Commission Award 3624 KAUMIUMI(k), Land Commission Award 8838 KAHUKUMA(k) and Land Commission Award 9013 KAWAIMAKANUI(k). Census records for 1900, lists 4th Great grandfather J. Kauhoe(k), for 1910 census, lists 3rd great grandmother, E. Pipili(w), for 1930 census, lists great grandfather Willie Hepa(k).

Our Native Hawaiian ancestors continued their daily lives, catching marine life, growing taro and other fruits and plants for subsistence as part of their Traditional Gathering Rights.

During my employment as a Archaelogist Monitor, I encountered "Inadvertant" multiple Burials at a residence on Niulani road, south of Keaka Road in Waipouli. Those Burials have been recorded with SHPD.

Sincerely,
K. C. Ching
Milton K.C. Ching

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Figure 6: Email from Milton Ching, recognized descendant